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CONTRIBUTORS FOR VOLUME XX.

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Anders, James M., Philadelphia, Pa. Cases illustrating the various forms of chronic diffuse nephritis; mitral regurgitation following acute rheumatism . . .	435	Denison, Charles, Denver, Col. Diagnosis of tubercular meningitis by tuberculin.	611
Anders, James M., Philadelphia, Pa. Cases illustrating the various forms of chronic diffuse nephritis; mitral regurgitation following acute rheumatism . . .	435	Didama, H. D., Syracuse, N. Y. Coughing made easy in bronchiectasis.	306
Angear, J. J. M., Keokuk, Ia. Consumption primarily a nerve disease.	558	Didama, H. D., Syracuse, N. Y. Mineral waters, crude and refined.	438
Andrews, Edmund, Chicago, Ill. Removal of the gas-serian ganglion	180	Dixon, Samuel G., Philadelphia, Pa. The bile salts, urea, etc., as therapeutic agents	604
Ashmead, Albert S., New York. On the absence of cow's milk from Japan: Its beneficial consequences . . .	83	Dixon, W. A., Ripley, Ohio. The morbid proclivities and retrogressive tendencies in the offspring of mulattoes	1
Atkins, E. C., Colorado Springs, Col. Salisbury diet as an aid to the climate of Colorado Springs in the treatment of pulmonary consumption.	335	Dodge, J. Smith, New York, N. Y. The general and the local in dental pathology	32
Atkins, Francis H., Las Vegas, N.M. A bird's eye view of New Mexico	27	Duhring, Louis A., Philadelphia, Pa. The external treatment of acute vesicular eczema	290
Bacon, S. S., Chicago, Ill. Should medicine and dentistry become a function of the State?	331	Dumesnil, A. H., Ohmann, St. Louis, Mo. Some successful methods of treating alopecia and alopecia areata.	525
Barrett, W. C., Buffalo, N. Y. The condition of the dentine in pulpless teeth.	59	Dunn, James H., Minneapolis, Minn. A case of tubercular adenitis with general alopecia and pruritus . .	504
Batten, John M., Pittsburgh, Pa. The treatment of diphtheria.	406	Eastman, Joseph, Indianapolis, Ind. Abdominal surgery and its evolution and involution	261
Bell, Clark, New York, N. Y. Recent judicial evolution as to criminal responsibility of inebriates . . .	195	Fisher, W. A., Chicago, Ill. A syphilitic gumma of upper eyelid resembling a dislocated lachrymal gland . .	606
Breakey, W. F., Ann Arbor, Mich. A case of lupus . . .	502	Fletcher, M. H., Cincinnati, O. A universal mento-dental splint, with report of case.	55
Briggs, Edward C., Boston, Mass. The removal of the tooth pulp by the use of cocaine	16	Gaston, J. McFadden, Atlanta, Ga. Surgery of the gall bladder and ducts	349
Broome, G. Wiley, St. Louis, Mo. Ideal surgery . . .	117	Gish, John L., Jackson, Mich. Diseases of the gums . .	57
Brush, E. F., Mount Vernon, N. Y. Contagion of scarlet fever.	2	Gradle, H., Chicago, Ill. What benefit can ear patients derive from nasal treatment?	597
Bulkley, L. Duncan, New York, N. Y. American Medical Association: Section of dermatology and syphilography.	476	Groner, F. J., Grand Rapids, Mich. The expert witness . .	601
Bulkley, L. Duncan, New York, N. Y. On the diagnosis and treatment of eczema seborrhoicum	528	Hahn, H. H., Youngstown, O. Electricity in gynecology, based on an experience of over one thousand applications	327
Bulkley, L. Duncan, New York, N. Y. Recent advances in the treatment of diseases of the skin and syphilis .	519	Hall, L. T., Fulton, Mo. Mental aberrations	637
Chenery, Elisha, Boston, Mass. Experiences with scabies	560	Hektoen, Ludwig, Chicago, Ill. Acute ulcerative endocarditis. A brief resume of the pathology of eight cases	626
Chenery, E., Boston, Mass. The sulphuric acid treatment of cholera and other choleraic diseases . . .	405	Hansell, Howard F., Philadelphia, Pa. The possibility of the early diagnosis of locomotor ataxia by the eye symptoms	167
Clarke, Augustus P., Cambridge, Mass. A consideration of some of the operative measures employed in gynecology	139	Hare, H. A., Philadelphia, Pa. A brief review of some of the recent practical advances in medicine and therapeutics.	651
Cordier, A. H., Kansas City, Mo. A new knot tyer . .	148	Hektoen, Ludwig, Chicago, Ill. Sarcoma of the pons and glio-sarcoma of the cerebellum	145
Cordier, A. H., Kansas City, Mo. Puerperal sepsis—laparotomy	549	Hamilton, John B., Chicago, Ill. The corner stone of the new biological department of Rush Medical College.	379
Cornick, Boyd, Knickerbocker, Tex. The influence of high altitudes on the arrest of pulmonary phthisis .	630	Herrick James B., Chicago, Ill. Diuretin	266
Crothers, T. D., Hartford, Conn. Some facts relative to diseases of the teeth and jaws in inebriety	8	Hewitt, Geo., Philadelphia, Pa. A case of tubercular syphilis	84
Crothers, T. D., Hartford, Conn. Specifics for the cure of inebriety	204	Hibberd, James F., Richmond, Ind. The necessity for prevention against cholera.	582
Curtis G. Lenox, New York, N. Y. Remarkable sequence of operation for necrosis at base of skull; a new method of resecting the third branch of the fifth nerve	37	Holmes, Bayard, Chicago, Ill. A study of the acquirements of the average prospective medical student in 1892	22
Cutter, Ephraim, New York, N. Y. Address on Dietetics—medical food ethics—now and to come . . .	270	Holmes, Bayard, Chicago, Ill. The forthcoming report of the bureau of education on professional education in the United States	39
DaCosta, J. M., Philadelphia, Pa. Clinical lecture on the treatment of different forms of Bright's disease of the kidneys	10	Holtz, F. C., Chicago, Ill. Eye troubles which constitute a frequent source of headache, vertigo and nausea and other nervous disorders	44, 67, 99, 123
Dalton, R. H., St. Louis, Mo. The limit of human life and how to live long	599		

CONTRIBUTORS.

Hopkins, J. G., Thomasville, Ga. Contagiousness of consumption	551	of alcoholic inebriety	408
Horwitz, Orville, Philadelphia, Pa. Two cases of sterility and impotence following the left lateral operation for stone	381	Porcher, W. Peyre, Charleston, S. C. A contribution to the study of chorea laryngis	289
Jenkins, J. F., Tecumseh, Mich. Practice of medicine in ancient Rome	122	Preble, Edward, Cleveland, Ohio. On a new and practical mode of grouping affections of the skin with analyses based upon one thousand cases	493
Junkermann, G. S., Cincinnati, Ohio. Oral manifestations in metallic poisonings	35	Prescott, Albert B., Ann Arbor, Mich. Caffeine and the question of its isomerism	90
Kercher, John, Chicago, Ill. A case of laryngeal epilepsy	604	Ravogli, A., Cincinnati, O. The influence of the nervous system in certain disturbances of the skin	496
Kuh, Sidney, Chicago, Ill. A case of spina bifida with curious disturbances of the sexual functions	20	Remington, Joseph P., Philadelphia, Pa. Prescription exigencies	96
Kuh, Edwin J., Chicago, Ill. A case of suffocative laryngotracheitis—and a method of immediate relief	411	Reyburn, Robert, Washington, D. C. A day with Professor Virchow at Charité hospital, Berlin	264
Laidley, L. W., St. Louis, Mo. Bronchocele, thyroidectomy	411	Reynolds, Dudley S., Louisville, Ky. The present status of the medical profession	618
Leighton, Walter H., Milwaukee, Wis. Results of military service as exemplified by cases found in the national military homes	142	Rice, Charles, New York, N. Y. Collaboration in materia medica and pharmacy	94
Lichty, D., Rockford, Ill. The quality of compressed air for sprays and inhalations	89	Ricketts, E. Merrill, Cincinnati, O. Forty cases of psoriasis treated with arsenious acid	482
Link, John E., Terre Haute, Ind. Advancement of surgery	198	Ridlon, John, Chicago, Ill. Jones Robert, Liverpool, Eng. Hip disease	170, 226
Manley, Thomas H., New York. Suppurative perforative osteo-myelitis of inferior maxilla, and multiple suppurative osteo-myelitis of tibial shaft, in another patient	121	Roberts, John B. Points of similarity between us and homeopathic physicians	580
Manley, Thomas H., New York, N. Y. Surgical therapy of rectal cancer	382	Roe, John O., Rochester, N. Y. The etiology of laryngismus stridulus	62
Marshall, John S., Chicago, Ill. A plea for extraction and replantation as a means of cure in obstinate alveolar abscess	5	Schaefer, F. C. Perityphilitis—report of three cases of perforating caecitis	606
Marshall, F. D., Chicago, Ill. Texas as a climate for consumption	353	Schaefer, Frederick, C. Chicago, Ill. Skin grafting upon the cranium	149
Martin, Franklin H., Chicago, Ill. One year's work in tubal and ovarian laparotomies. Thirty-seven cases without a death	293	Shoemaker, John V., Philadelphia, Pa. Medicinal plasters	499
Massey, G. Betton, Philadelphia, Pa. A summary of electro-therapeutic work in a private hospital	547	Shoemaker, John V., Philadelphia, Pa. Gold: with especial reference to its clinical application	656
McGuire, Hunter, Richmond, Va. President's address	621	Shuell, T. J., Parnell, Iowa. The atmospheric tractor in obstetrics	380
Meisenbach, A. H., St. Louis, Mo. Knife curette. Especially adapted for operations on the bones and cartilages	181	Smith, I. C., Austin, Texas. Trichloroacetic acid: as a test for albumen; as a caustic; and as an astringent	383
Montgomery, W. T., Chicago, Ill. Cataract operations	437	Talbot, Eugene S., Chicago, Ill. Arrests of development and decalcification of the enamel and dentine	29
Moore, James G., Minneapolis, Minn. Two cases of excision of the knee joint	356	Tuttle, Albert H., Boston, Mass. Report of cases of trephining and cerebral injury	354
Moyer, Harold N., Chicago, Ill. Alcoholic insanity as illustrated by the case of John Redmond	207	Tyndale, W. C., Chicago, Ill. Notes on the eucalyptus	70
Mudd, H. H., St. Louis, Mo. Address on general surgery—surgical problems	661	Wells, Edward F., Chicago, Ill. Calcium sulphide in the treatment of pulmonary tuberculosis	439
Nassau, Robert H. Native African child marriage: Its relation to uterine disease and difficult parturition	87	Wells, Edward F., Chicago, Ill. Pneumonic fever; its symptomatology	17, 125, 319, 465
Oaks, John F., Chicago, Ill. The technic of catheterism of the Eustachian tube, and the indications for its use	64	Wilder, William H., Chicago, Ill. Squint and its treatment	658
Ohlmacher, A. P., Chicago, Ill. A combined water and albumen method of fixing paraffin sections on the slide	440	Wilcox, Reynold W., New York, N. Y. Lithæmia. Its treatment	302
Ohlmacher, A. P., Chicago, Ill. A peculiar nuclear safranin reaction, and its relation to the carcinoma coccidia question	111	Wilson, Augustus, Philadelphia, Pa. A simple tourniquet clasp	125
Ohlmacher, A. P., Chicago, Ill. Myxosporidia in the common toad with preliminary observations on two chromophile substances in their spores	561	Wirt, Wm. E., Cleveland, O. Ricketts and the treatment of its resulting deformities	13
Patch, Edgar L., Boston, Mass. Comparison of marked fluid extracts and their relation of fifty per cent. tinctures	177	Wolfe, Samuel, Philadelphia, Pa. A study of the Cheyne-Stokes respiration	89
Peterson, Frederick, New York, N. Y. The treatment		Woodbury, Frank, Philadelphia, Pa. Chairman; Section on materia medica and pharmacy	95
		Woodbury, Frank, Philadelphia, Pa. Two cases of lithæmic vertigo; with remarks on the treatment of the gouty state	463
		Wood, Horatio C., Philadelphia, Pa. On chorea, viewed from the standpoint of comparative pathology	196
		Würdemann, H. V., Milwaukee, Wis. Etiology of ophthalmia in the newborn	377
		Van Hook, Weller, Chicago, Ill. Experimental union of the ureter after transverse division	225

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No. 1.

ORIGINAL ARTICLES.

THE MORBID PROCLIVITIES AND RETRO- GRESSIVE TENDENCIES IN THE OFF- SPRING OF MULATTOES.

Read in the Section of Diseases of Children, at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June 7, 1892.

BY W. A. DIXON, M.D.,
OF RIPLEY, O.

Observations extending over a period of more than thirty years have thoroughly impressed the conviction upon my mind that the offspring of mulattoes are the subjects of constitutional diseases to a greater degree than are those of unmixed blood, and that when confined strictly to their own class, they scarcely reach the fourth generation in descent, by reason of disease and sterility.

I have often wondered if others have had occasion to notice this feature in mulatto life, or whether the conclusions at which I have arrived are false and unwarranted from being based upon observations confined to a local district, yet rich in examples that go far to establish the view propounded. I believe that there is not much to be found in current medical writings upon the subject. Our locality is on the border between the free and the slave States of fifty years ago and more. It was then and long before had been, the custom of many wealthy planters, as they advanced to old age, to set free that portion of their estates which bore to them a filial relationship, and establish them in homes, in a section of country, where they would receive fair treatment, consideration and respect, as citizens and members of the community in which they should reside.

Such an opportunity was offered to them in our locality largely populated by abolitionists and sympathizers with the slave.

Thus, a community as it were of mulattoes, whose parents on the father's side were white men, mostly of great wealth and position, socially and politically, and principally of New England stock, existed near us.

The most of these people were complete types of physical perfection, tall, muscular and perfectly developed.

Many of them lived to old age, quite to one hundred years. Their wives were mulattoes. They were proud of their parentage and light color of skin. They made good citizens, and often were prosperous, as farmers. Their prosperity and pride almost separated them from their less fortunate brethren of darker color, and their children intermarried, that their color and race might continue.

I can trace some of these families through three or four generations. Those of the first cross were robust; those of the second were paler, more ashlike in com-

plexion, of slender form, plainly bearing many of the characteristics of predisposition or inevitable tendencies to special diseases, of the strumous type. The third union resulted in less fertility and greater predisposition to disease. Now, the children present the scrofulous physiognomy. The fourth union, still less fertile than the others, brings forth a progeny largely suffering from cutaneous affections, ophthalmia, rickets, dropsy of the head, white swelling of the knee joints, morbus coxarius, diseased glands, suppurating sores until the whole generation is quite extinct. I can scarcely find any of the fourth generation in good health.

These people have had all the advantages that their neighbors enjoyed. They had the best of schools, excellent religious privileges, were moral, upright, and highly respected.

They were able to maintain an academy of learning, from which their sons and daughters could go forth amply equipped to struggle in the unequal contest of life. All of these institutions succumbed to the waning constitutional vigor of their offspring. The academy is no more. The schools and churches, so ably maintained by their forefathers, are extinct.

The old family name is scarcely heard, and inquiry reveals the fact that their offspring were tuberculous, and either died in youth, or, if living, were so sterile that no descendants scarcely of the old families can be found.

This is true not only of one, but of many groups of families. The contrast between the histories of the mulatto and the white and the negro families residing side by side, as to health, as to power to resist disease, and as to longevity, is too great to escape notice, or to be regarded as merely incidental. It is now observable by the colored people themselves that if a mulatto marries back to the parent stock, the children escape to a greater degree scrofulous affections.

I have spoken to a number of physicians in this locality upon this subject, and they all agree that tuberculosis exists to an excessive degree among the mulattoes: that they are inferior in vitality, intelligence, and consequently morality, that they exhibit a mortality more considerable than that of the surrounding whites or negroes, and without reunion with the parent stock the mulattoes would soon become extinct. In the first generation they are quite prolific among themselves and arrive at maturity rather promisingly, but when these children intermarry they and their offspring are not prolific, a large portion being sterile, at even the second and third generations. It is noticeable that the mulatto girls develop in advance of both white and negro girls, but fade away as women, much sooner. It is noticeable also that in the second and third generations of pure mulatto intermixture, that quite all the children born are girls, which are noticeably sterile.

This fact I have observed so much that I believe it to be a physiologic truth. I would be pleased to learn if the observations of others who have given any notice to this subject confirm my own.

If this be true in one locality and in the mingling of the white and black races there, why not look for the same result in the cross of races elsewhere, and thus the introduction of the virus of constitutional diseases, which is transmitted through the succeeding generations?

I believe that ethnologists mainly agree that human hybridity cannot be maintained without reversion, or fresh supply from parent blood. Dr. Robert Knox, in his work on "The Races of Men," says: "I do not believe that any mulatto race can be maintained beyond the third or fourth generation by mulattoes merely; they must intermarry with the pure races or perish." M. Georges Pouchet, says "that such a race, such a type can only have an ephemeral existence." Dr. Paul Topinard refers to a record on this subject in North Carolina. "There the caste of free men was constituted entirely of mulattoes freed by their white fathers. The State, dismayed at the important position which they assumed, put a stop to this liberation. Left to themselves their number diminished at the rate of 29 per cent. decennually."

Ethnologists "have sought in vain among the nations of the earth for a race manifestly hybrid, with well defined characters, intermediate between two known races, perpetuating itself without the concurrence of the parent races."

Dr. Prichard in his natural history of man, in his effort to find such, subsisting by themselves, could only point to three instances. The Griquas, the Cafuses, and the Papuans. Broca and others object to the truthfulness of these examples, and assert "that by no means do they prove that a mixed race can perpetuate itself separately."

If Dr. Pritchard, in his vast researches, finds it difficult to discover three examples only of hybrid races subsisting by themselves, and they so liable to objection that the other ethnologists deny the proof to be conclusive, then may we not inquire into a cause for the introduction and propagation of diseases, physical weakness, sterility and conditions unfavorable either for moral or physical development, beyond the microbe or bacillus.

The same causes that degenerated and brought to an ignoble end some of the royal lines and the most ancient blood of Europe are at work still, and in our midst also. Look, and wherever you see the greatest intermingling of races, there you see raging tuberculosis, carcinoma and struma in all their terrorizing forms, there you see an excessive mortality among the children, a disparity between the number of men and women, the women being in the majority; there you see the scientist with his microscope hunting for the enemy of life and health in the sputa, the excreta and the cell elements, when in fact the modification of the racial type, by the influence of some media not apparent in the cell elements themselves, altered in some way by the process of miscegenation, generates this virus—these microbes, these bacilli, which claim for their victims more than 25 per cent. of the dying.

Are there any races comparatively free from tuberculosis and all strumous affections? Wherever you see the purity of race maintained, in civilized or barbarous countries, there you see little or no tuberculo-

sis and scrofula. Do these affections prevail among the Jews and other unmixed races to anything like the extent, that we see in countries overrun by immigrants of every race, producing crossed races, without limit or regard to race affinities?

Broca mentions the assertion of several ethnological writers, "that the United States, where the Anglo-Saxon race is still predominant, but which is overrun by immigrants of various other races, is by that very circumstance, threatened with decay, inasmuch as this continuous immigration may have the effect of producing a hybrid race containing the germ of disease, decay and future sterility." There are serious men who have predicted from ethnologic causes, the overthrow of the United States, just as Ezekiel predicted the ruin of Alexandria."

The difficulty in finding instances in the past of nations surviving such influences may excite faith in the prediction, in spite of our unexampled growth, that the fundamental facts as to the perpetuation of crossed races, will ultimately prevail, even in our own country.

In conclusion, I am fully conscious of the fragmentary nature and narrow scope of this paper. I have made no attempt to go into the literature upon this subject, with which, indeed, I am too imperfectly acquainted. I have simply endeavored to briefly set forth these crude ideas which have been the outgrowth of my own observation. If they stimulate the profession to a livelier sense of the importance of looking back beyond the bacillus, and of teaching purity of race, in order to secure greater freedom from tuberculosis, greater immunity from cancer, less mortality, less imbecility and insanity, and greater longevity, than are found among any race of hybrids, it will fulfil the object for which it was written.

CONTAGION OF SCARLET FEVER.

Read in the Section of Diseases of Children at the Forty-third Annual Meeting of the American Medical Association, held in Detroit, Mich., June, 1892.

BY E. F. BRUSH, M.D.,
OF MOUNT VERNON, N. Y.

The two words, contagion and infection, are often used indiscriminately, and many a writer who starts with a definite idea of the word "contagion," will often before he gets through with what he has to say confuse it with the word "infection," and very few people who have not given the matter special study, can give the distinctive difference of definition between the two words. Our dictionaries are in the same confusing condition concerning these words. Thus: *The Century Dictionary*: In common use no precise discrimination of the two words "infection" and "contagion" is attempted. *Webster*: Infection, the transmission of affection without direct contact. In contradistinction to contagion. *Billings*: Contagion, capable of communication from one person to another either by actual contact or through the air. *Foster*: Contagion, the communication of disease from one individual to another by means of direct contact. Or as used as some writers (in the sense of infection) by effluvia. *Worcester*: Contagion, the communication of disease from one person to another by contact, direct or indirect. *Dunglison*: Contagion and infection are generally termed synonymous.

Dr. Pruden has recently tried to untangle the con-

fusion which exists in the common use of the terms, contagion and infection. He writes in a paper read before the New York Academy of Medicine, Jan. 21, 1892: "There should be among ourselves none of the old indefiniteness regarding the exact meaning of such terms as infection, infectious disease, contagium, contagiousness and the like."

The meaning of these terms was of necessity uncertain when the things themselves which they were intended to specify, were largely matters of speculation and conjecture. It were well, perhaps, if they were dropped wholly from our speech and replaced by new words coined in the new light. But as this may not be, the next best thing is to remodel the meaning, and with this to reinvest the words.

I think I do not err in saying that those who can justly speak most authoritatively in this matter are agreed that in the light of to-day, an infectious disease is one which is caused by the invasion and reproduction within the body of pathogenic microorganisms; not necessarily an invasion by bacteria, because in one case, at least, malaria, the invading pathogenic microorganism is not a bacterium, but belongs wholly to a different class. The invading microorganisms which we must assume to cause the exanthemata are wholly unknown to us, but the nature of these diseases justifies us in grouping them with those infectious diseases whose causative agent is definitely known. Infection is the condition produced by the entrance and multiplication of pathogenic microorganisms within the body.

The word contagious no longer covers infinite possibilities in the unknown, or carries with it the mysterious terrors of the unknowable. The contagium in any infectious disease is for us to-day the particular pathogenic microorganism itself, whose advent in the body ushers in those reactions of the body cells which we call disease. The contagium of an infectious disease is a particular thing, which has length, breadth and thickness, and weight and the varied powers of the lowly forms of life.

An infectious disease is contagious when its contagium, that is, the microorganism which causes it, under the ordinary conditions of life, can be freed from the body of a diseased person, and by whatever means conveyed to the body of another in a condition capable of lighting up the disease anew. The old indefinite distinction between infection and contagion, by which one strove to express, among other things a fundamental difference between the conveyance of disease by personal contact and by aerial transmission, has become impracticable and valueless now, because we know to-day that the differences in the mode of communicability of infectious diseases are largely dependent upon the physical qualities of the contagia, upon the places and ways in which these are freed from the body, and upon the places and ways in which they enter the bodies of the new victims.

The moment we know exactly what we mean when we speak of contagium, the moment we have learned to follow the movement of these particular contagia as they leave the bodies of their victims—in one case in the stools, in another from the skin, in others from the mucous membranes, and can trace their diffusion and life stories in earth, air or water; the moment, I say, that we can bring the light from these varied factors to bear on the clinical stories of infectious disease, we are not only in a condition to

talk plainly about the degrees of contagiousness, but to study the conditions under which degrees of contagiousness may vary in nature or be varied in art.

It is an unfortunate circumstance that the most common notion of a contagious disease is derived from those which are most dreaded and most liable to spread—from such diseases as the small-pox and scarlet fever—so that the common conception of a contagious disease is of one which necessarily taints the air about the victim—surrounding him, so to say, with an infectious atmosphere. But this notion is wholly groundless with any disease common with us outside the exanthemata, and is apparently reasonable here only because the contagia of these diseases are unknown to us, and are probably cast off through the skin, and so easily diffused.

The fact is that such infectious diseases as typhoid fever, diphtheria, and tuberculosis can be highly contagious or made scarcely at all so, depending upon the care or lack of care which is taken by the victims or their attendants in the disposal of their varying exudates or discharges."

Now, it does not seem to me that he has simplified the matter at all. Of course, if we are to consider bacteria as the prime cause of specific disease, then we must have a term to express the condition that arises from these agents and separate entirely from the bacterial diseases, the terms contagion and infection. There is an attempt just now to do this by the use of a new word, chemotaxis. Of course, before this word can be used it must be worked into tenses, for it has always appeared to me that one of the main difficulties with the term contagious is that it has no past tense, and the word infection has. We can say a person has become infected with an infectious disease, but when we wish to use the past tense with contagion, the only word I can think of is contamination. Now the word contaminated expresses a condition of soiling, or more vulgarly, dirtying, and really this is the sense in which it should be used. Thus, one becomes contaminated with syphilitic virus just as much as if he was contaminated with feces or any other matter. And from this point of view I have been teaching for some years that contagious diseases are those in which it is only possible to contract the disease by becoming contaminated either by coming in contact with the diseased person himself, or through something he has himself previously contaminated. Now, with this understanding of the term, the danger associated with a given disease would be clearly defined, because we would all know that a contagious disease would only be dangerous by contamination, either by food, clothing or any material thing that has been in actual contact with the diseased body. While the term infection should be used only with those affections that infect the atmosphere, like exanthemata, and it can also be used to express some of the nervous affections. Yawning often becomes infectious and in like manner hysteria does also. It is in this sense that Shakespeare used the word, "Infected be the air whereon they ride." With this view of the terms, we would classify scarlet fever as an infectious malady as are all the other exanthematous diseases. Of course all the dangers of a contagious disease are associated with the infectious diseases, but there is an extra danger in infectious diseases by reason of becoming affected without contact. But the vagaries of scarlet fever have been a stumbling block to everyone since the disease was first known.

Prof. Stiles in a recent correspondence in the *New York Medical Record*, writes: "Prof. Chapman, who held the Chair of Practice in the University of Pennsylvania from 1833-36, affirmed positively that scarlet fever was not contagious, and for some years the matter remained undecided. But with the disease in our time, I do not believe that any one holds this opinion now. From the best evidence we possess, the disease is comparatively new. It was not known in Europe until the time of the Crusades. It appeared first in Japan in 1610, and in America in 1735. It seems to be confined to the white thin skinned races as the negro and the Japanese are not affected, and it does not flourish in Hindostan. It is curious about the negro, he takes the measles in a very malignant form, but enjoys immunity from scarlet fever, a disease that until recent times was confounded with measles, and both diseases came to America from Asia daring or immediately following the Crusades.

Scarlet fever was a very rare disease in America during the last and beginning of the present century. So much so that Dr. Rush, about the beginning of the present century, makes the remark, "that no physician here would be likely to see it more than once in a lifetime." Just to give an idea of the views prevailing in this country forty years ago, I quote from a Systematic Treatise, Historical, Etiological and Practical, "On the Principal Diseases of the Interior Valley of North America," by Daniel Drake, edited by Hanbury Smith, and Francis Smith, M.D., 1854. "A malignant form of scarlet fever affected the first settlers of Kentucky and Ohio in 1793. It was always fatal at Marietta and Belpree, the oldest settlements of the State of Ohio. It was most dreadfully destructive among the children and young persons, attacking and destroying nearly all the former. It is worthy of remark that at the time of this epidemic the country was an almost unbroken forest, and the emigrants lived in open cabins, and subsisted on a simple diet, very often deficient in quantity. From this time until 1803 I do not know that any form of scarlet fever appeared in the valley of the Ohio, but since this date, that is, for the last twenty-five years, it may be regarded as one of our epidemics, having at no time been absent from the valley of the Mississippi, and the Lakes. In my personal intercourse with physicians, I scarcely conversed with one north of the 33d degree of latitude who had not seen the disease once or several times, though many south of that parallel had never met with it. Of its introduction into most of the localities in which it has pervaded, we absolutely know nothing. I have never been able to trace up a single case at Cincinnati to importation by patients or families, nor as far as I know, has a case of that kind been made out.

Pervading for several months or a year one place, the people of surrounding places although they maintained the usual intercourse with it will remain exempt. When it appears in a family, it seldom attacks all the liable at the same time, but more commonly does so progressively, while one child in each of a number of neighboring families may be seized simultaneously. Presenting such habitudes, we need not be surprised that our physicians, like those of other countries, differ in opinion as to the course in which it propagated itself. A part believe it is never infectious, another part, as appearing and

spreading solely by infection. A third and a larger portion, consider it to have originated de-Novo, but to be capable of propagating itself, and the truth probably lies between them. Thus we see how many different opinions there are regarding scarlet fever, and the disease will continue to puzzle us until we know vastly more about infection and susceptibility than we do at present. I have seen cases arise in children that could not by any possible means have been exposed to infection of recent origin, and I have seen children exposed to the disease in its most malignant form and not take the infection. If the materia morbi retains its virility for the long period it has been supposed to do, then we may in any ordinary house get some infected material in our homes through the ordinary supplies of food or clothing, etc.

A very remarkable case is cited in the *Times and Register*, March 12, 1892. Dr. W. E. Holland writes as follows:

"The following is an accurate statement of a case which came under my charge some four months ago. I was called to see a boy fourteen years of age. His mother said he had a strange eruption appearing on his face and body. After inquiring and making an examination of the case, my mind at once reverted back to the hours that I had the pleasure of listening to your lectures on the practice of medicine, and especially your lectures on scarlet fever, and hearing you say the germ would live for years in the laid away clothes of persons who had suffered from the disease. At the time of this case there were no cases of scarlet fever anywhere within a radius of twenty miles. I carefully inquired of my professional brothers of the section, and they said they had no cases of scarlet fever. I then made a very careful examination of the house all through, and in the garret in the corner stood an old chest, which had been handed down from one generation to another, and had been used to store away old clothes. I then asked the mother if any of the family had been sick with, or had died with the scarlet fever. She replied that her father had come home sick, and the physicians said he had scarlet fever. He laid sick for some weeks and died. I then asked what had become of his clothes. She said they had been stored in the old chest in the garret for thirty-five years, but that she had recently taken a pair of her father's pants and made out of them a pair to fit his grandson. The latter had only worn them a few days when the rash made its appearance."

In the same journal, Dr. Backwood, of Philadelphia, writes:

"I know beyond question that a suit of clothes which the patient outgrew during his illness, was the cause of giving the disease to a poor child to whom the articles were given, a year after the original patient had gotten well, and the garments were kept in camphor, etc., all that time to preserve them from moths."

Now, in contrast to this let me cite a recent occurrence that came under my own observation. A lady sent for me one afternoon a few weeks ago. When I reached the house I found her in a state of excitement. Three of her children were ill with ordinary functional stomach trouble. One of the children was complaining, and requiring the mother's constant attention, and several times the servant girl, who had been in the family only a few days, came

into the bedroom to do some errand, and each time she would say, "That is just the way my brother acted." As the servant had only been in the family a short time, the lady took no notice of the remarks at first, but finally asked what was the matter with her brother, "Sure, ma'am, he died of scarlet fever two weeks ago." Then the lady questioned her closely, and found that the servant was one of eleven who lived in a tenement house in one of the lower wards of New York City. Four of them had scarlet fever, and one boy of twelve had died. And the girl came from that infected tenement house with the same clothes she wore during the prevalence of scarlet fever. The lady, of course, ordered her out of the house in a lively manner, but still none of the children took scarlet fever. A circumstance like this proves nothing, and is only interesting, as is the following taken from the *Times and Register*, March 12, 1892. Dr. R. V. Salmon, of Dadeville, Alabama, writes as follows:

"Your letter of the 18th inst. received asking for a letter from me on scarlatina. My reply may sound a little queer, but we have had no scarlatina in this section since 1856, though it has been thirty miles on the same railroad."

The question as to what gives immunity, is, of course, the interesting point in the discussion of this disease. The black and dark thick-skinned inhabitants of the earth are immune. We must infer by means of this difference in their skins, because as far as we know, there is no other physiological difference. The question that occurred to me, and in fact, my reason for studying the subject at all was to settle in my own mind, whether or not in a case of scarlet fever occurring in one of a family of children, is it advisable for the unaffected children to remain at home, or ought they to be sent away? This question came to me personally during a sorrowful experience, and I was unable to settle it fully. I remember three instances, one several years ago, before I had studied medicine. A Presbyterian minister had three children, two boys and one girl. The girl was attacked with scarlet fever, and at once the boys were sent away from home. The girl made a good recovery. Everything that could be done to make the house clean with disinfectants, etc., was completed, and several weeks elapsed after the girl's recovery when the boys came home. They both took the disease, and one died. I have known personally the occurrence just like this. Then on the other hand, a family living on the same street with me in Mount Vernon. Four children, one was attacked with scarlet fever, the other three children remained in the house. The mother took care of the sick boy until he died; she mingled with them and with other members of the family, but none of the others sickened.

Dr. Campbell related to me a case that occurred in his practice. Of a family of eight children, one sickened with scarlet fever, and was isolated in an attic room. The case progressed favorably. During the peeling stage the sick child was left alone by the nurse for a few moments, and when she returned to her charge, she found the seven well children in the room playing with the desquamating case of scarlet fever. Not one of them took the infection. If these children had been taking belladonna as a prophylactic, what would the verdict be? These and many others of like nature, make me think that there may

be some sort of immunity by reason of a child living constantly in an infected atmosphere, if it has escaped the first infective influences.

We have an analogy in some of the cattle diseases. There is an infection in cattle known as Texan fever. It belongs to the anthracoid class of diseases, and the native cattle of Texas can have the affection and not be disturbed in their general health, but if one of these affected Texan cattle mingle with any bovines not natives of Texas, or if some of the non-natives cross a track previously travelled by Texan cattle, they are attacked with the disease, and ninety per cent. of them die.

There is also an endemic affection among the cattle on the steppes of Russia, known as petechial typhus, which is so mild with the natives as to call for little or no attention. But if any animals not natives come in contact with the diseased cattle, they take the affection and die. So, I believe many diseases create by their own virulence an immunity in individuals who have lived in the infected area. And so I believe from the facts that have presented themselves to me, after years of close observation, that the children in a household, who have escaped the first infective influences of an invasion of scarlet fever, are safer to remain in the infected area than they would be if removed to another house or region. I am willing to admit that this is largely a matter of opinion, but the question often arises, and will continue to be a serious subject to the practitioner. Therefore, it is worthy of further study. As a prophylactic measure with children unaffected, and in a household where the disease exists, I recommend the skin and entire body to be anointed with a weak solution of carbolic acid in olive or cotton seed oil, morning and night, and a gargle composed of half an ounce of fluid hydra-tis, in a tumbler of water, used three or four times daily. For I believe the site of invasion of all the exanthematous diseases to be the skin, and sometimes the mucous membrane lining of the upper air passage, and hence the reason for the prophylactic measures recommended.

A PLEA FOR EXTRACTION AND REPLANTATION, AS A MEANS OF CURE IN OBSTINATE ALVEOLAR ABSCESS.

Read in the Section on Oral and Dental Surgery, at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

BY JOHN S. MARSHALL, M.D.,
OF CHICAGO, ILL.

Mr. Chairman and Gentlemen of the Section:—In the presentation of this subject I make no claim to a new discovery, for the operation is an old one and has been occasionally practiced with varying success for many years. I trust, therefore, that I shall be pardoned for introducing a subject in this presence which cannot be classed as a new operation, or an entirely new method of treatment. Methods, however, are sometimes improved and I shall be content to leave to your good judgment whether the line of treatment to be presently indicated is rational and justifiable, and any improvement over the methods generally pursued.

One of the first and most important principles of surgery is the conservation of diseased organs and tissues, provided they can be restored to a healthy condition, rendered more or less useful for the pur-

poses for which they were created, and incapable of harm to other members or the general system.

In these days of antiseptic surgery, many things are accomplished which a few years ago would have been considered highly dangerous or impossible. The abdominal cavity is now opened with impunity, and operations made upon the enclosed viscera, that to say the least, are startling: The chest is explored and portions of the lung removed; the cranium is perforated, and tumors extracted from the superficial and deeper portions of the brain; and yet the individuals operated upon live to tell the tale.

In no department of minor surgery has greater advancement been made than in dentistry. Most of the diseases of the mouth and associated parts are now more successfully managed, and thousands of diseased teeth are restored to health and usefulness every year, that were formerly consigned to the forceps, and this has been largely the result of a better knowledge of the causation of many diseases and how to prevent and to combat the inflammatory processes by aseptic methods.

I was led to adopt the practice of extracting and replanting teeth for the cure of obstinate or persistent alveolar abscess on account of the failure—in my own hands and those of others—to cure a considerable percentage of these cases by the ordinary means at our command.

By obstinate or persistent alveolar abscess, I mean those cases of alveolitis in which the inflammatory symptoms persist after all the ordinary means of disinfecting and filling the root canals, etc., have been faithfully tried without avail.

This form of alveolar abscess is usually the result of a crooked root or an abnormally small root canal, making it impossible in either case to remove the putrescent pulp or render innocuous the retained septic material; or perforations of the root made in attempts to open small root canals; or erosion of the apical end of the root; or the presence of broaches, filling material or dressings, which have passed the apical foramen; it is accompanied by a more or less persistent discharge of pus, either through the external or internal plate of the alveolar process, or through the alveolus at the neck of the tooth. Occasionally cases will be found in which no discharges are present, but instead, a chronic induration of the surrounding tissues, or as in the superior teeth, the discharges may find their way into the antrum of Highmore or the anterior nasal passages, and possibly mislead the surgeon.

These teeth are usually sooner or later condemned as harmful or worthless members of the body and are removed.

It is this class of teeth for which I make my plea, and I believe from a practical experience extending over a period of several years with this method of treatment, that a majority of them may be rendered healthy and useful for an indefinite period.

It is perhaps hardly necessary to say that replantation is only admissible in the anterior teeth, including the bicuspids. The molars are not capable of being replanted only in exceptional cases, when there is fusion of the roots, and they assume a conical form, and occasionally a lower molar, where the roots are perpendicular to the crown.

I think it will be generally conceded that attempts to cure *in situ* such cases as those just mentioned, usually prove unsuccessful, and that eventually the

teeth are lost. This, I believe, results from the fact that such operations are largely, *per force*, only guesswork. If the root is curved at a more or less acute angle, it is difficult to follow the canal with the broach, and many times quite impossible; or if the canal is abnormally small, the finest broach may not enter at all. Drilling is unsafe; and under these conditions the various antiseptics and liquified filling materials are unsatisfactory; because they do not always penetrate to the end of the canal, and consequently septic material remains in the root and keeps up a constant irritation.

In cases of erosion of the apical end of the root, amputation of this portion *in situ* is rarely successful in curing the disease, owing to the difficulties in smoothing the stump and perfectly filling the apical foramen. The same may be said of attempts to plug perforations of the sides of the root. In those cases where broaches, filling material or dressings have passed the apical foramen diagnosis is difficult, except by trephining the alveolar plate and this has no advantage over extraction and replantation.

Roughened surfaces and foreign substances are not kindly borne by the tissues which surround the roots of the teeth. It is therefore imperative that all such hindrances to a return to the normal condition be reduced to a minimum.

For these reasons it would seem preferable to extract and replant such teeth if they do not speedily prove amenable to treatment by the usual methods; for, with the tooth in the hand, the root can be minutely inspected and any eroded portion amputated; and the surfaces finely polished. The root canal can be reamed out and cleansed without fear of perforating its sides; the canal and the apical foramen or a perforation, plugged with gold and carefully finished, and the whole thoroughly sterilized by immersion in bichloride of mercury solution 1 to 500 of water (tepid) for thirty minutes.

None of these operations are possible with the same degree of perfection while the tooth is *in situ*; they must be more or less imperfect; and just in that degree will they produce irritation, and the more serious inflammatory processes.

The question might be very properly asked, "Are the operations of replantation and transplantation of freshly extracted teeth having the pericementum attached, founded upon physiological law and sound surgical principles?" I answer, yes! Quite as much so as are the operations of skin and bone grafting, and no one condemns these. Union with the tissues with which they are placed in contact is the result of the same vital processes; the surgical conditions are nearly identical in each of them and success is as certain in the one as in the other; provided the same aseptic conditions can be maintained until union is complete. Failure of replanted teeth to unite with their alveoli is much less common than with transplanted and implanted teeth; at least my personal observation bears out this statement. The immediate cause of failure in replanted, transplanted and implanted teeth is usually suppurative inflammation induced either by mobility of the tooth which constantly breaks up the attachment of the plastic exudate; or septic condition of the tooth, or its alveolus at the time of the operation; or inoculation afterwards from a filthy condition of the mouth.

The failures which occur later, viz.: after attachment has taken place, are more difficult to under-

stand. In these cases the surfaces of the roots are attacked by the osteoclasts and gradually honey-combed; or masses of tissue are dissolved at various locations, leaving large cavernous excavations with sharp edges; suppuration accompanies or follows the work of the osteoclasts; the tooth becomes loose, and is sooner or later expelled from the jaw as a foreign substance.

In explanation I would venture the opinion that these phenomena are due to irritation induced by a septic condition of the dentine, resulting from decomposition of the organic material contained in it, and that in the form of a gas or effluvium it penetrates the cementum, and, coming in contact with the pericementum and surrounding tissues, sets up this retrograde metamorphosis.

There are certain individuals for whom it would not be wise to undertake the operation, viz.: those suffering from general anæmia, tuberculosis and syphilis. Such people are never good subjects for surgical operations, as their tissues are very irritable. They do not as a rule heal readily, and are prone to suppuration and sloughing, consequently replantation, transplantation and implantation, if performed upon such persons, are likely to prove unsuccessful.

Many of the failures from these operations that have come under my notice, have been associated with one or the other of these diseases. Great care should therefore be exercised in the selection of the cases upon which to operate. Carelessness in this regard can only result in failure.

Of the many operations which it has been my privilege to perform, it has not thus far been my misfortune to be obliged to record a single failure, although they have comprised all grades of the disease, several of long standing, and ranging in duration from a few months to fifteen years. But I refrain from mentioning individual cases, for fear of wearying you.

The after treatment consists in frequent irrigations of the mouth with antiseptic solutions; among the best of which are the Thiersch solution composed of boric acid, 12 parts; salicylic acid, 4 parts; water, 1000 parts; and another consists of listerine, 1 part; water, 3 parts.

Bichloride of mercury solutions are not permissible on account of the danger from poisoning and the blackening of the teeth.

We are all no doubt interested to know the character of the union which takes place between the root of the replanted tooth and its alveolus, but so far it has not been positively demonstrated. I would therefore like to offer a few thoughts which I trust may end towards the elucidation of this question.

Applying the methods employed in physical diagnosis to these cases, we find that percussion gives the most marked signs. Taking the percussion note of normal teeth, produced by striking the tooth with a steel instrument as the standard of pitch, we find that as inflammatory conditions of the alveolus advance, the percussion note becomes lower and duller; while on the other hand, as these symptoms subside, the note assumes a clearer and higher pitch. This lowering of the tone is doubtless the result of a thickening of the pericemental membrane, and its increased vascularity.

The percussion note given by a large percentage of replanted teeth a few months after the operation or

when union is complete, is much clearer and higher pitched than that of the adjoining teeth. This is more noticeable in the superior than the inferior teeth, on account of the greater resonance of the superior maxilla.

These facts would seem to indicate that a bony union takes place in these cases between the root and its alveolus. It would also seem probable that the locations at which this ankylosis would most likely occur, would be where the pericementum had been destroyed, or the cement tissue partially removed, and I can see no reason why under these conditions union may not take place in the same manner as with fractured bones. In other cases the percussion note is normal. This would indicate a normal reunion of the pericementum with the alveolus; but where the percussion note is lower and duller, it would be certain evidence of an indurated pericementum, or other inflammatory symptoms.

In conclusion, let me emphasize the following points as necessary to insure success in these operations:

1. Exclude anæmic, tubercular and syphilitic cases.
2. Secure thorough aseptic conditions of the surfaces of the root and pulp canal, by washing and immersing in bichloride of mercury solution 1 to 500 of water.
3. Amputate and smooth all eroded surfaces but sacrifice as little of the pericementum as possible. This is very important.
4. Hermetically seal the pulp canal, and apical foramen, and any perforations that may exist, with gold fillings.
5. Curette the abscess cavity, remove the blood clot from the alveolus, and wash both with the bichloride of mercury solution before replanting the tooth.
6. Secure immobility of the tooth by a ligature or an interdental splint, until union has taken place.

Venetian Building.

DISCUSSION OF DR. GRADLE'S PAPER.

(Concluded from page 774, Vol. XIX.)

Dr. Fletcher asked if the peculiarity of the extent or position of the antrum was indicated in any way by the shape of the face. For instance, is the antrum farther back in a face with high cheek-bones, or is there any similar indication in regard to it?

Dr. Talbot said that as far as he knew there was nothing to indicate the extent or position of the antrum from the form or character of the bones of the face.

Dr. J. S. Marshall hoped that something would be said of antral disease following the grip. He had had four cases, in each of which there had been discharges into the nasal cavity of thick mucus,—not bad smelling, nor was it pus, but simply apparently an excess of mucus which had filled the cavity and was discharged through the nose. He thought it advisable to open into the antrum between the roots of the second and third molars, as this is usually the most dependent part of the cavity. He usually used, as an antiseptic, Thiersch's solution,—a bland antiseptic, and very satisfactory.

Boric acid, 12 parts;
Salicylic acid, 4 parts;
Water, 1000 parts.

Dr. Talbot reported a case where, after the opening had been made, there was no immediate flow of pus; but such a flow did occur a day or two after the operation.

Dr. Gradle, in reply, stated that this had happened in a case of his where he had opened into the antrum, supposing a formation of pus there was responsible for a train of neuralgic troubles. He found no pus at the time of the opera-

tion, but in a day or two afterward there was a flow, which he was at first inclined to charge to infection from the instrument used in the operation; but the history of the case convinced him that the disease was the cause of the original trouble, as after the antrum was cleaned out the neuralgic troubles ceased. It is possible sometimes that there may be infection by the instrument or if there be morbid fluid already present, piercing the wall and allowing the entrance of air might cause the formation of pus.

Dr. Taft asked Dr. Gradle what per cent. of diseases of the antrum were caused by diseased teeth.

Dr. Gradle thought between forty and fifty per cent.

Dr. Taft raised the question whether the micro-organisms in the pus from such positions as the antrum and the seat of a whitlow, for instance, where there was no opportunity for the microbes to obtain entrance from without, were the cause of the pus-formation, or whether they were merely an accompaniment, and asked where they came from and how they obtained access to such closed-in positions.

Dr. Gradle thought that the blood was possibly the vehicle which carried the microbes.

Dr. A. E. Baldwin said if this was so, and the blood carried these micro-organisms, there was certainly no safety in any measures which we could devise to keep them out of the system.

Dr. Clifford thought it better to pay more attention to systemic treatment in diseases of the antrum rather than to depend altogether on local treatment. The cause must in many cases be systemic, and we cannot reasonably expect to effect a permanent cure unless we remove the cause. He had had cases which he relieved without opening into the antrum or establishing any drainage, by paying attention to remedial measures applied to the system at large.

SOME FACTS RELATIVE TO DISEASES OF THE TEETH AND JAWS IN INEBRIETY.

Read in the Section of Oral and Dental Surgery, at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

BY T. D. CROTHERS, M.D.,
OF HARTFORD, CONN.

Seen from the clinical and neurological standpoint, a large proportion of the hereditary cases of inebriety have defects and degenerations of the face, jaws and teeth.

Up to the present time, no studies have indicated any *specific* degeneration that can be traced to alcohol as the sole cause. Nevertheless, the inebriate from heredity or other causes has defects, malformations and retarded growths of various organs of the body that are hints of continued organic degeneration. The inebriety or any associated disease in the parents may appear very prominently in defects of the face, head and jaws. These widely differing variations from the normal symmetries are almost infinite in diversity and degree. The same variations in quality and capacity exist in the brain.

How far the bony structure of the calvarium is controlled by the brain itself or how far external defects influence the internal development, is not yet clearly understood.

The frequency with which congenital defects of the head and face appear in inebriates suggests a pathological relation, which is fully in accord with other facts, and are also true of other degenerative processes. The complex degenerations from the excessive use of alcohol are always transmitted in some form to the children.

Low vitality and defective cell growth and nutrition appear in the descendants in aggravated forms.

The children of such parents are always noted for physical defects of structure and type, although

they may display widely varying degrees of brain power—from genius to idiocy.

Inebriety is often only developmental disease, beginning in embryonic life, and manifest in various degrees of malformations. A child with organic defects at birth is switched on the road to inebriety, insanity and perhaps idiocy. Hairlip, cleft or deformed palate, talipes, rickets and other abnormalities are unmistakable hints.

A child in infancy who has convulsions at dentition, strabismus, and later chorea, epilepsy, asthma, who at puberty suffers from hysteria, arrested growths, stupidity, or abnormal sensitiveness is on the same road with the same destination.

If to this is added malformed maxillaries and palate arches, together with defective teeth, the evidence is complete.

It is an important question, however, how far a deformed palate or defective teeth can be accepted as evidence of neurotic or alcoholic diathesis. If the question is confined to the teeth, some curious facts appear.

It may be said to be an established fact that the teeth of hereditary neurotics vary in shape and structure from those of persons of different heredity. Probably they are not any more marked in many cases than any other organic degenerations. Some of these defects do not appear in organic form or structure, but in the power and quality of force displayed.

The effect of alcohol in excess on the teeth is within the observation of all persons. This may be described in general terms to be that of an irritant, impairing the vitality of the mucous membranes and developing a grade of chronic inflammation that is continuous. The stomach, throat, and mouth all become the seat of degenerative processes, by which the nerves of the teeth are quickly affected. The nutrition of the teeth is impaired and the pulp dies, the gums retract, often leaving a red line of demarcation.

The effect of alcohol on the system is to paralyze and impoverish the nutritive system. Conditions of practical starvation supervene, affecting all growth. Hence, degenerate teeth and gums are the natural outcome.

It is a fact that inebriates, as a rule, suffer from early disease and death of the teeth. A large proportion of cases under my care seek the aid of the dentist early in the treatment. When the teeth are destroyed and replaced by others, carelessness in the quality of food, in mastication, and methods of eating are sources of irritation that farther predispose to the use of spirits. The neurotic diathesis that is seen in the early decay of the teeth will, in many cases develop inebriety, as the result of impoverished brain nutrition.

Irregularity of the teeth is also very prominent in inebriates. Projecting incisors and molars that crowd past each other and various other deformities are common. I have in a few cases noticed what seemed to me a very unusual absorption of the bone where teeth had been withdrawn, leaving great cavities, usually seen only in advanced age. This has appeared to me to be a part of the customary alcoholic degeneration.

Some years ago a very large, broad shouldered, muscular inebriate came under my care. He had a thin, piping voice. Examination revealed a very

high, narrow palate arch, with a projecting lower maxillary. He was an hereditary neurotic from an insane and moderate drinking family. His father had the same high vaulted palate, but a retreating, imperfectly developed lower maxillary. He had two brothers, one a famous tenor singer, with striking astigmatic face, and no doubt had a high palate arch. The second had a high arch with a flat dome and irregular teeth and jaws.

Within a year I have seen two children of this patient, both with deformed palate arches and teeth. They are markedly neurotic and have strongly marked degenerative heredity.

It is a common observation that a thin, high-pitched voice is a possible hint of hereditary degeneration when seen in inebriates, and it is often associated with deformed mouth or maxillaries.

This observation of Dr. Talbot appears to be amply confirmed in my experience. Reasoning from the general history of these cases, I should expect to find many deformed palates and teeth, and other marks of physical defects, such as cranial deformities, facial irregularities, together with ill-shaped hands, feet, arms and legs.

Retarded growths and over-growths, associated with mental defects, are often very prominent.

From a clinical point of view, a deformed palate may be taken as an unmistakable sign of neurotic degeneration, which may or may not develop into a distinct form of disease. If with this are associated bad teeth, a tendency to break out into inebriety doubtless exists, due to nerve and cell starvation, with consequent exhaustion, for which alcohol is a most seductive narcotic. In a large per cent. of inebriates, where a deformed palate is found, it can be taken as a sign of nerve and brain degeneration, and will be accompanied by other physical signs of like import. Further study of these cases will reveal mental defects of reason, conduct, and character.

The inebriate who has this peculiar arch with defective maxillary growths has received from his ancestors a pathological bias which will make a cure difficult.

I shall close this brief note with a quotation from Dr. Clausten's work on the "Neuroses of Development:"

"If the skull in its growth, its size and its shape, its dome and base, is actually dominated by the brain it defends and contains, then the brain growth will in this way secondarily determine the shape of the upper maxillary bone and the palate.

"The brain unquestionably deriving its shape, size, and qualities from ancestry and a bad heredity, determining a bad brain, we see how a bad nervous heredity would naturally determine an abnormal palate. The theory that a high palate may be a "reversion" to a lower animal form or to the form in lower races of mankind seemed to be largely disproved by a careful examination of the palates of most classes of animals and of different races from the Europeans to the extinct Americans, the Australians and the Hottentots, which I made in the Anatomical Museum of Edinburgh University.

Where dolicocephaly and brachiocephaly is a matter of race and not of disease or degeneration, they make no difference in the palate dome.

There is no such thing as a high V-shaped palate in any animal or in any race from the Australian aborigines upward. In one way only can the V-

shaped palate be connected with a reversion to the animal type. Apart from prognathism, the sides of the palate, that is, the lines of the bicuspid and molar teeth on each side tend to run parallel to each other.

Now, supposing the lines of the teeth in man during development were approximated and made parallel by a formative reversionary process, the palate would be pushed up in the center,—the line of the least resistance—into the nasal cavity.

Those palates where the deformity consisted in a ridge down the center antero-posteriorly, seem to show that in them the deformity took place at a later period than in the other deformed palates when the nasal septum was getting stronger and kept the center of the palate down, while on each side of it the palate was drawn up making two palate vaults instead of one.

The theory that the shape of the palate is dependent on the nasal cavity of which it is the floor seems to me without any valid foundation whatever.

The upper maxillary bone is related to three functions, viz.: alimentation, smell, and facial expression.

There is no proof that either smell or mastication is interfered with by a high dome, but unquestionably facial expression is greatly influenced by any change in its form, and facial expression is naturally related directly to the development of the mental part of the brain and is dependent on it. Speech I found, is affected slightly by the shape of the palate.

The theory that deformed palates are due to thumb-sucking in infancy is utterly baseless. Idiots notoriously don't suck well.

Prognathous jaws certainly seem to be a reversion to an animal and lower human type, but they do not necessarily imply a high palate.

Virchow's theory of premature or irregular ossification of the skull sutures,—though it may explain some few cases of idiocy—does not seem to me to explain the high palate any more than I think it explains the dolicocephalic or brachiocephalic types of head or the types of cerebral sulci.

The deformity of the palate occurs during brain growth, early in life, probably in utero.

We must refer the high palate to a bad initial neurotic heredity, just as we refer a bad type of face or irregular teeth or an asymmetrical head to such heredity.

Mere accidental changes in the head shape are quite consistent with good brain development. The brain in its growth, if artificially confined in one direction will expand in another, and not suffer in function thereby.

The savages who make their children's heads square by pressure do not alter the mental or motor functions of the brain thereby.

The vaulted palates and altered dental arch must be taken with other changes in the head and especially in the face expression. As one of the morphological indications that show a tendency in the person to whom it belongs and in his family to developmental neurotic diseases—notably idiocy, congenital imbecility, stuntedness of growth, deformity, epilepsy, adolescent insanity, and that organic lawlessness and lack of mental inhibition or weakness of mind that distinguish the criminal classes. It is thereby one of the marks of a family that is tending ing toward mental death and extinction.

As regards the exact mode in which the palate deformity arises, I cannot find any help in a study of the mode of ossification of the upper maxillary bone, except in the cases where deformity consists in a depression or two depressions where the four centres of ossification meet. If the anterior lobes of the brain,—and that is the part of the brain that lies above the palate—become contracted through hereditary brain deficiency, and the skull base in front is therefore narrowed while the jaw must remain large enough to hold a normal number of teeth, it might naturally assume more the shape of the bow of a boat than a horse-shoe.

The alveoli of the bicusps and molars on each side being drawn together by the narrow skull-base from which they hang and this process would throw up and deform the palate.

Clayshaw's measurements of the skull-base and pterygoid arch give much support to this hypothesis.

In congenital mental defect it is the anterior lobes that are found chiefly deficient, and in the microcephalic and Kalmuck class of idiots—where the brain has undergone most developmental lessening, the palate is found to be highest and most deformed.

Taking all the facts into account, it seems proved that the condition of the palate may be a most important index of brain development and of liability to developmental neurosis.

My second class of neurotic palates is apt to go with a nervous temperament—often with a neurotic diathesis; often with high mental qualities, but not all-roundness of capacity; often with keen sensitiveness or supersensitiveness of bodily feeling or emotion, and frequently with liability to the lesser functional neuroses—such as hysteria, neuralgia, migraines, headaches, etc.

It seemed to me that the consumptives are more apt to have neurotic and, many of them, deformed palates, than the sound in body.

I did not find any connection, hereditarily or otherwise, between my "deformed" palate and cleft palate.

They seem in a way to represent formative tendencies "in utero" in opposite directions.

In the case of the ossifying centres in cleft palates they had not been able to meet in the center and close in the floor of the nares, through perhaps excessive width of skull base; while in the latter, as we have seen, there was a greater width of palate bone than was needed to stretch across, and so it had to rise up in the center and form an acute angle or high arch.

Discussion.

Dr. J. Taft said the most remarkable effects noted in the paper were on the shape of the jaw and mouth due to hereditary transmission. These effects were important and undeniable, but the question arose in his mind whether the inebriate suffered any change in the conformation of these parts induced by the habit of drinking.

Dr. Crothers said there were very marked changes, but chiefly those resembling the changes usually brought about in the process of aging.

Dr. Barrett said he understood the essayist to refer to the V-shaped vault as a reversion to the animal type. He thought this was a mistake, as the high or V-shaped vault is not found among animals. It, however, might be true in regard to the V-shaped arch, as this, or rather the saddle-shaped arch, is common in animals, more especially those nearest correlated to man.

Dr. E. S. Talbot:—I am much interested in the paper of Dr. Crothers, especially as the author's long connection with an inebriate asylum gives him peculiar advantages for

observing these conditions. I will have to take issue, however, with his statements that these peculiarities of the mouth and jaws extend back to uterine life. Every observing dentist knows better than that. The author being a medical man, has not the opportunity for observing the mouths of all classes which we of the dental profession have. We know that this condition is never found during the existence of the first set of teeth. The deformity begins in the sixth or seventh year.

For several years I have been making a study of these peculiarities in the mouths of idiots, mutes, inebriates and criminals. In that time I have examined about seven hundred and fifty mouths of inebriates, and have found a larger percentage of badly formed mouths than among any criminal, idiot, or other defective class; but the defects are not so marked. There are fewer absolutely V-shaped arches among inebriates, but more of what might be called partial V-shaped arches; but I find plenty of V-shaped arches among criminals, idiots, the deaf and the blind. Now another singular thing: there are twice as many high vaults among inebriates as among any other class of degenerates. This proves that the inebriate is born; that it is impossible for him to live a straight, ordinary life. One born with the qualities that this formation indicates will become either an extreme egotist, a genius in business or some other direction, or he will be deaf and dumb, idiotic, blind, or an inebriate. I will show this in a paper I am to read before the Neurological Section, and will show that the inebriate is diseased.

If we examine a skull, we find quite a space between the hard palate and the brain. If the brain is arrested in its development, the osseous system will likewise be undeveloped, but the arrest of development in the osseous system will be caused by the want of development in the brain. I may say, however, that the lower jaw is developed independently of the rest of the face.

Dr. Fletcher asked whether the fact that both the teeth and the brain were developed from the epiblast had any bearing upon the defective teeth in the classes spoken of?

Dr. Talbot thought that as the arrest of development was from causes back of the birth of the child, it was reasonable to suppose that there was a defect in the tissue from which the organs originated.

CLINICAL LECTURE ON THE TREATMENT OF DIFFERENT FORMS OF BRIGHT'S DISEASE OF THE KIDNEYS.

Delivered at the Pennsylvania Hospital, Philadelphia, November 19, 1892.

BY J. M. DA COSTA, M.D., LL.D.
OF PHILADELPHIA, PA.

Gentlemen:—I shall this morning bring before you a series of cases of Bright's disease, illustrating several varieties of this affection. After discussing their clinical features and diagnosis, I shall make some remarks upon treatment. It happens that the wards are now rich in cases of kidney disease; so that I am enabled to group for you cases suffering with different types of the disorder.

Case I is a boy 16 years old, who was before you two weeks ago. I pointed out to you at that time the striking phenomena. I told you that he had the characteristic look of the affection. He was pale; his face was oedematous, as were his limbs; his mind was dull, and examination of his urine revealed the cause to be chronic parenchymatous nephritis. Not to repeat at length what we then discussed, I will merely speak of the treatment. I said that we should treat the case with the lactate of strontium, a remedy which is new in the treatment of these Bright's affections, and which, both last year and this, I have been testing clinically. Now here is a case returned after two weeks, and we may ask ourselves if this plan of treatment has been followed by any striking results; in fact, by any result that would make it worth while to continue the remedy. We observe that his general condition has improved; he looks

brighter, but there is still pallor and puffiness of the face. He passes from forty-two to sixty ounces of urine daily, and last week it ranged from sixty to ninety ounces. Nevertheless, the proportion of albumen remains high. The precipitate upon boiling the urine in a test tube is from sixty to seventy per cent. in bulk; and this proportion was found in the urine during the preceding week, even when he was passing such a large quantity. We further observe that his tongue is slightly coated; the bowels are daily moved; his appetite is good. His diet consists of milk, oysters, fish, vegetables, bread, and some tea and coffee. He has not been allowed to eat meat. He has been taking milk six ounces every two hours, and the other articles of food at meal times, so that milk forms the greater part of his nourishment; as his appetite is good, he gets quite enough in the way of food. You probably wish to be told what has been the result of the remedy in this case. The strontium has acted the part of a powerful diuretic; the urine at one time, as you observe by this chart, went up to ninety ounces. Nevertheless, the amount of albumen has not been decreased. His general health is fair; at all events it is not apparently suffering much at present.

The pathology of this case has been already referred to; it is recognized as one of parenchymatous nephritis. There is now very little dropsical swelling remaining. Under these circumstances, should we consider that he has had enough of the remedy? Or what conclusion can we form in reference to it? First, let me call your attention to the fact that the dose was even increased from thirty to forty grains, three times a day (or two drachms daily). I do not believe it proper to increase this dose or even to continue the remedy. I think, after two weeks trial, that we may conclude that this agent will not produce any specific effect upon the albuminuria. This is not my first experience of the kind with the strontium salts: I tried them last year, when they were first brought forward, and I may state that I had very much the same results last winter as we have had in this case. The effects of the lactate of strontium have been carefully studied in these cases. It is an admirable diuretic it is true, but as far as any specific effect upon the kidney or upon the excretion of albumen is concerned I cannot say that we have yet obtained any decided results. I therefore conclude that it is in cases of Bright's disease with scanty secretion that it is most applicable, since it will increase the amount of the urine passed without causing any irritation of the kidneys; but as for diminishing the amount of albumen, I do not think it will maintain the reputation it had at first, or accomplish what was then claimed for it; for you are aware that the French clinicians who introduced it did not do so because it possessed diuretic properties, but on account of its alleged effect in diminishing the amount of albumen. You have already heard that albumen still exists in large proportion in this boy's urine, associated with epithelial casts, that are largely granular. I will now give him some other remedy that I hope may prove more useful in diminishing the albumen. I will here try a remedy that I have found of benefit in similar cases; it is nitro-glycerine. We will begin with two drops of the one per cent. solution in alcohol, and gradually increase it as high as ten drops, given three times each day, carefully observing the effects. In one

case, I went above this as high as thirty drops three times a day; but I think that for the most part it is better to confine ourselves to smaller doses, say not over ten drops of the centesimal alcoholic solution. Its best results are shown in reducing the excretion of the albumen, thus diminishing the amount of drain from the blood of this important constituent. The diet of the patient will remain the same.

Case II is a man 65 years of age (carried in on a bed). Now, gentlemen, here is a case with which I am not so familiar; barring a short conversation with him yesterday, I see him now for the first time. The resident physician tells me that this patient has been in the hospital once before for the same malady, so that we may learn something of the early history of the illness. This also is a case of Bright's disease of the kidneys. His present attack began three weeks ago, or it may be more correct to say that he grew worse three weeks ago, for the doctor says that he was in this hospital from May until last June, and then went out better but not cured. He was dropsical upon admission on the former occasion, and his urine was scanty, eighteen to twenty ounces a day; it contained small quantities of albumen with granular casts. In his previous history I find a note of eye-changes; whitish, glistening spots seen in the right eye, and similar spots, but less marked, in the left eye—in other words the characteristic retinal changes of Bright's disease. Under treatment in the hospital, with digitalis, elaterium, followed by Basham's mixture, his dropsy disappeared. He was so much better that he considered himself cured and left the hospital; but he was not well. This was his previous history; now we come to his present illness. Three weeks ago he became worse; he complained of pains in the lumbar region, and of some dizziness, but had no dropsy at this time. He came back to be treated for his pain in the lumbar region and for vertigo. The dropsy has not reappeared. The urine has been examined since his re-admission two days ago. On the 17th it was 1020, clear, of alkaline reaction, and amounted to fifty-four ounces; yesterday (the 18th) it was thirty ounces. The proportion of coagulum after boiling in the test tube was two per cent. The small white sedimentary deposit consisted principally of phosphates; no casts were found.

His tongue is clean; the bowels are moved daily. His pulse is distinctly rigid, showing increased arterial tension, and his temporal arteries are prominent and throbbing. The heart has a sharply accentuated, second sound; the apex impulse is, however, to be felt within and under the left nipple. Notwithstanding this extraordinary accentuation of the second sound, and the forcible impulse which may be felt all over the cardiac region, I do not find any evidence of decided cardiac disease. There is no enlargement of the liver, nor of the spleen, and no œdema of the chest or extremities. Now, what is the matter with this man? This case is entirely different from the one you saw before. This patient has a cirrhotic or contracted kidney. The condition is readily recognized by three signs. In the first place, the absence of dropsy, or only its occasional appearance, and even that I infer from his history rather than from anything that we see at present. Secondly, the retinal changes found upon ophthalmoscopic examination. Thirdly, the signs of

increase of arterial tension shown in the pulse and the very markedly accentuated second cardiac sound. Finally, the urine record is most significant. The two per cent. of coagulated albumen we have here, is in marked contrast with the sixty to seventy per cent. in the other case. In that patient we had parenchymatous nephritis, in this cirrhotic kidney; in the former there was enlargement and in the latter contraction of these organs. This is the form which has been called chronic, interstitial nephritis. The urine usually has the specific gravity of 1005 to 1015; here it is a little higher, but this does not impair the general features of the case. Let me direct your attention to one more point. You recall the fact that casts were so frequently found in the other case that every examination showed them in profusion; here they are rare. Yesterday the resident examined four slides without meeting with a single cast. But this is not altogether a typical case. Is there anything lacking? Yes, the heart condition. When you have a case lasting as long as this, it is common to have more than mere increase of arterial tension, and accentuated second sound and marked impulse. It is common to find cardiac hypertrophy, and its absence here will give us a point of prognosis. On account of the absence of this lesion in the heart, the patient is very likely to have a longer life before him, and better health than if this change had taken place. Except for the accidental occurrence of uræmia or uræmic convulsions, the cases of interstitial nephritis which do best in the long run are just these cases that are free from cardiac lesion.

As regards treatment, it is very important to keep the bowels in a soluble condition. The cardiac overaction and the condition of the blood-vessels make it incumbent upon us to administer laxatives. Rochelle salts, repeated several times a week, may be given. We will avoid a routine treatment such as the administration of infusion of digitalis, because while it would affect favorably the dropsy, where it exists, it would aggravate the arterial tension. If we increase the heart's action, we run the risk of rupturing the vessels and bringing on an attack of apoplexy. What class of remedies would then be likely to do good in this case? I should not consider that the treatment by nitro-glycerine, given to the preceding case, would be of any value here, simply because the amount of albumen is extremely small, as it usually is in contracted kidney, though the nitro-glycerine would be of service for the arterial tension. If we could find some remedy which would reduce the amount of fibrous tissue forming in the kidney it would strike at the root of the malady. Corrosive sublimate is such a remedy, and I will therefore give this patient bichloride of mercury in increasing doses. I have tried iodide of potassium, but found it of certain efficacy: in some cases I have seen increased irritation and injury of the kidney following its administration. I believe that the bichloride is a safer remedy, and will commence with a dose of one-thirtieth of a grain three times a day, increasing it gradually to one-eighth of a grain.

Now, gentlemen, at the same time that we give the bichloride for the condition of the kidneys, we must pay some attention to securing the free action of these organs. The patient is now passing hardly urine enough, only thirty ounces a day. I will, temporarily at least, give him cream of tartar in the form of lemonade (made by dissolving the

cream of tartar in sweetened water, half an ounce or more to the pint), which he shall take daily until the secretion is freer. As a rule, you will not have much difficulty in keeping up the secretion in instances of contracted kidney; indeed, it is apt to be a little more than normal. He may also drink some mild diuretic mineral water, such as Poland water.

The diet is a very important part of the treatment of a case of Bright's disease. This patient has been put upon a milk diet almost exclusively. Is it essential that a patient with contracted kidney should be exclusively upon a milk diet? I answer, No. It is a nourishing, bland diet, and has diuretic properties, but in cases of contracted kidney where there is so little albumen as there is here, I give milk mainly, but I also allow toast, the yolks of eggs, and other light articles of food, such as oysters, fish and poultry. While keeping to milk diet as the main line of treatment, I do not make the patient's life miserable by insisting strictly upon milk as the sole article of diet.

We will watch the progress of these cases; one having a large amount of albumen, casts and dropsy, a case of parenchymatous nephritis; the other with a small amount of albumen, no casts, no dropsy, a case of interstitial nephritis, and the latter on a different plan of treatment from the former.

Case III.—Here, gentlemen, is yet another case of Bright's disease of still different character. It is fortunate that the rich material now in the wards will enable me to exhibit to you the principal forms of this protean malady in a series of cases, and to point out the different indications for treatment in each and the best course to pursue in the general management to secure the most benefit to the patient.

This man is about 70 years of age, of spare frame and at present confined to bed. He had a brother, he says, who died with dropsy. He himself, prior to his present attack, has been a well man, or at least in his ordinary health, as he is a chronic sufferer from hæmorrhoids, to which he attributes all his illness. We get the following history from the physician who attended him outside of the hospital: during last winter he had an attack of what was considered acute nephritis, from which he entirely recovered. He then was well as ever until six weeks ago, when he began to complain of shortness of breath, weakness, and swelling of his legs.

As you see his legs are œdematous; they pit upon pressure, although since he has been in the hospital, the enforced rest in bed has done him much good, and the swelling is less marked than when he came in. There is no abdominal dropsy; no disease of the heart can be detected upon auscultation of the chest. There is feeble respiration with slight relative dullness at the back of the lungs especially upon the left side, where I can hear some moist râles. His tongue is clean except towards the back, where it is slightly coated. The bowels are costive. The urine has a specific gravity of 1022, and it is acid this morning, but was not so yesterday. It contains albumen and a sediment composed of abundant epithelial casts and urates, but no blood.

Now what is the matter with this man? He is suffering from an attack of acute or subacute nephritis. The fact that he was in his usual health—for his ill-health before was his usual condition and due to hæmorrhoids which seem to have embittered his existence—it is fair to say, I think, that he was in

his usual health, when he suddenly became short of breath and dropsical with albumen in the urine, and casts. The only question is, Is the present attack one which can be traced back to the seizure which we learn from the physician who attended him he had last year, or is it a distinct attack? It is difficult to say, as we know nothing at all about the condition of the urine in the meantime, since he passed from medical observation until he applied here for treatment. If you ask my opinion as to the probabilities of the case I would say, that there has been since the former attack a slight amount of latent kidney disorder, and that the present is really a subacute attack of nephritis. If this were entirely an acute attack, we should have more albumen and perhaps some blood in the urine.

What is to be done for the patient in the way of treatment? We must first relieve the present condition of dropsy. His shortness of breath is due to dropsy of the lungs or serous effusion into the pulmonary areolar tissue. There is pulmonary congestion with effusion. There is no disease of the heart and we must look to the kidneys for the cause of the disorder. On account of the coated tongue, costiveness and congested internal organs, laxatives are indicated here as in the preceding case. Let him have half an ounce of bitartrate of potash every other day, and if it does not produce results, give it every day. Let him have diuretic mineral waters freely; He shall have infusion of digitalis, half an ounce every four hours, its effects being watched. We will dry-cup his lungs to relieve the pulmonary congestion, and he shall also have a few dry cups over each kidney. After the irritation from this has subsided, croton oil or tincture of iodine may be applied over the kidneys in the lumbar region. As this is an acute, or at least a subacute attack, we will put him upon a milk diet. He may have some toast with his milk because it will make his diet less monotonous; but the more strictly he keeps to the milk diet the better.

We have here indicated a different line of treatment from that of the two other cases—milk diet, diuretics, digitalis and laxatives. Under these precautions the acute condition will pass away and then we will be able to decide whether there was anything left from the preceding attack, or whether this was an entirely new seizure.

I have been enabled this morning to place before you, in these three patients, three different forms of Bright's disease of the kidneys, and to show you how they differed in their clinical characters, how they required different forms of treatment, and also how they differed in their prognosis and ultimate consequences.

[The treatment in Case III was followed by the happiest results. When he was shown to the class a week later, the albumen was reduced to a mere trace and all the dropsy had gone. In the first case shown, scanty urine coming on and symptoms of mild uræmia, the nitro-glycerine in a few days had to be discontinued, and pilocarpine, laxatives, caffeine and benzoate of sodium were substituted, under which he rapidly improved.—*Rp.*]

TO DEODORIZE IODOFORM. (*Pharm. Zeitung*):
R.—Iodoformi, 97 parts; acid carbolic, 1 part;
essent. menth. pip., 2 parts.

RICKETS, AND THE TREATMENT OF ITS RESULTING DEFORMITIES.

BY WM. E. WIRT, A.M., M.D., Ph.D.,

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In the consideration of a medical topic we must recognize its importance as depending on: first, the frequency with which the disease occurs, and secondly, the severity of the disease if left untreated. Taking this as our standard of test we must recognize in rickets a disease of considerable importance.

Frequency.—In Europe the disease is very common, especially is this so in England, and to such an extent that in some countries it is known as the "English disease." The proportion of all children, attending certain clinics, having rickets is given as follows: Dresden, 25 per cent.; Berlin, 11 per cent., Parague, 31 per cent. In the higher classes the proportion is much smaller.

Merei states that in Manchester one in five children of well-to-do families had rickets, and the proportion is about that great in the wealthier classes.

Its severity when left untreated varies considerably. In the milder cases the lesions are insignificant, and the ultimate damage done is of little importance. But in the severer cases the results are quite different; the changes in the spinal column and extremities modify seriously the contour of the body, and may even prevent locomotion; the changes in the thorax interfere seriously with the function of vital organs; the changes in the bones of the skull may even endanger the life of the child; while the deformities produced in the pelvis are a menace to future generations.

Climate.—It is stated by various observers that it is a disease more especially of northern climates, it being particularly common in Germany, Denmark, Sweden and England. But my own observations lead me to think that it is more common among the Italians and negroes than any other class of people. In the city of Cleveland the disease is quite common among the former, and I recently had a death among them from this cause.

Occurrence.—Rickets is mostly a disease of early childhood though it is observed at other periods of life. Enough cases of fetal rickets have been observed and recorded to establish its possibility. At the age of puberty changes may take place in the bones which are recognized as due to rickets. In girls at this age the preparation for the catamenial flow causes disturbances of nutrition, and if to this we add a sedentary life we have conditions favoring this disease. Vincent, of Lyons, considers the scoli-sis of adolescence as late vertebral rickets.

A form known as senile rickets has been described, but the condition thus found is probably the same as that known as ossium mollities. But by far the greater proportion of cases are seen in children between the ages of six months and two years.

Pathological anatomy.—The pathological changes noted in rickets are mostly to be found in the ends of bone, in the cartilage and in the periosteum. Chemically, there is a change in the proportion of the organic to inorganic material, in the normal bone the organic matter constitutes about one-third of the bone. In rickets the organic material may compose as much as four-fifths of the bone.

Histologically there are many changes, the most

marked of which is seen in the cartilage between the epiphysis and diaphysis. This cartilage normally contains a zone of proliferation, consisting of one or two layers of cells, while in rickets it is composed of many layers of cells involving nearly the whole intervening cartilage. The cells are much enlarged and the matrix is diminished. Therefore, the proliferating zone is much increased in size, is soft, and of a grayish translucent appearance. This increase of the proliferating zone accounts for the epiphysal enlargements. The process of ossification is arrested. The Haversian canals extend from the bone into the proliferating zone by a process of absorption and appropriation. Attempts at ossification are shown by granules of lime being scattered through the cartilage, and here and there are found nodules of true bone. Increase in thickness of bone occurs from the under layer of the periosteum. In rickets this *subperiosteal* layer is increased in vascularity, and in appearance much resembles spleen pulp, so that the older observers mistook this condition for a subperiosteal hæmorrhage. The bones affected are the skull, jaw, teeth, spine, extremities and pelvis.

The effects on the skull are a direct sequence of the non-ossification of the bones. The sutures and fontanelles remain open much longer than they should and resulting from this are changes in the shape of the head. The diameters are changed, the head being lengthened and flattened latterly. The contour of the head is rectangular with prominent frontal and parietal eminences. The forehead is prominent, and in some cases even to the extent of overhanging. Authorities differ as to the relative size of the head, some claiming that it is larger, and some that it is smaller than normal. The London Pathological Society reported in the *Lancet* of 1880 that in seventeen children of average age of 4.72 years the average circumference was 21.22 inches, while in an equal number of non-rachitic children with average age of 6.05 years the average circumference was 19.95 inches.

On the other hand Ritter von Rittersheim, on the ground of careful comparative measurements, denies that there is any enlargement. As for my own opinion, my experience would lead me to think that the head is enlarged in rickets. I have measured few rachitic children whose heads measured less than 20 inches, while the vast majority measure more than this.

In regard to the effect of this disease on cerebral development as apart from the size of the head, Trusseau held that cerebral development was favored, while Gee maintained that there was retarded cerebral growth. My opinion inclines toward the former view the vast majority of rachitic children certainly seem above the average in intelligence.

A condition of the skull known as craniotabes, which consists of a softening and thinning of the bones, was until recently considered to belong particularly to rickets; but syphilographers claim to find this condition more or less common in syphilis. One argument advanced by Goodhart in favor of its common connection with rickets is that craniotabes is almost invariably associated with laryngismus stridulus; again laryngismus stridulus is universally admitted to be almost always due to rickets; so that if the two are thus closely associated, the evidence is clearly in favor of the rachitic nature of craniotabes.

The thinning of the skull in craniotabes is due to the pressure of an external object, as the pillow, from without, and the pressure of the brain within. It is usually found on the posterior aspect of the skull, due to the child lying more commonly on that part. On pressure of the hand the impression conveyed is likened to that of parchment paper.

Other parts of the head affected are the jaws and teeth. The whole face is smaller than normal, and this is particularly seen in the lower jaw which is shortened and becomes polygonal in shape. Fleishman claims that the upper jaw is lengthened.

The process of dentition suffers severely. The incisors may not appear until ten months or later, and when they do appear they are deficient in enamel and crumble readily. Delayed dentition is of great diagnostic importance.

In the trunk we find various changes. The ribs are early affected, and changes take place in the contour of the thorax. The so-called "rachitic rosary" consists of a beading or enlargement of the ribs at their anterior ends where they unite with the costal cartilages, and it is a most characteristic symptom of the disease. The atmospheric pressure combined with muscular force acting on the softened ribs causes a change in the contour of the thorax. The most common deformity is a flattening in the sides and a pushing forward of the sternum producing the condition known as pigeon breast. Sometimes the reverse takes place, and the sternum is sunken in instead of protruding and forms what has been called the bird-nest breast. In severe cases these changes in the chest interfere seriously with the action of the heart and lungs. Changes in the arteries may and do result from these abnormalities in the shape of the chest.

In marked cases the abdomen becomes quite protuberant. The spine very commonly suffers from the disease, the bones being softened and the ligaments weakened, and following this condition we have kyphosis or lordosis, the former being the more frequent.

In its effects on the bones of the pelvis of woman rickets verily threatens man's posterity, and on this account the rachitic pelvic deformities are considered the most serious to which the skeleton is subjected. They are produced by the downward pressure of pelvic organs which tend to flare out the brim; by the pressure of the trunk, transmitted through the spinal column, which, acting on the sacrum presses forwards its promontory, thus shortening the antero-posterior diameter; by the action of the heads of the femora in standing and the pushing in of the tuber ischii in sitting, both acting to narrow the outlet of the pelvis. Serious consequences may follow from the marriage of a woman who had rickets of any severity.

The deformities of the skeleton the most apparent are those of the extremities, the most marked of which are found in the lower extremities. In the upper extremity we find the humerus usually bent only slightly with the convexity outward, the point of greatest curve being at the insertion of the deltoid; the radius and ulna are bent with convexity outward. Sometimes the bend is quite marked just posterior to the wrist, and is thought to be due to creeping. The natural curves of the clavicula are increased, and frequently the scapula is found slightly warped with its edges thickened. In the

lower extremities we find the femur bent with convexity outward; the most common curve for the tibia and fibula is the simple outward curve recognized as bow-legs. In severe cases the lower limbs are so twisted as to have received the name of grape-vine legs. In these cases the femora at the upper portion are bent outward, at the lower portion they are bent inward forming a marked knock-knee: the tibiae are bent outward forming a marked bow-leg or frequently in the severer cases they are bent backwards, that is, with the convexity forwards. In a few rare cases the tibiae are flattened just below the knee with a marked convexity posteriorly.

Etiology.—The cause of rickets may be summed up in the word malnutrition, and may occur as Vincent has said: "In the very bosom of abundance"; but it is seen in its severe types among the children of the poor in large cities. There seems to be an inherited predisposition to the disease. Defective assimilation and enfeebled digestion which have a causative relation, can often be traced to diseased and cachectic conditions of the parents. The relation of syphilis to rickets has long been a mooted question. Certain it is that the impaired nutrition accompanying inherited syphilis must necessarily predispose to rickets. But the claim of M. Parrot that rickets is a manifestation of infantile syphilis is not borne out by the history and indisputable facts in many cases. Again, as against the syphilitic origin of rickets someone (whom, I cannot recall) has attracted attention to the fact that syphilis shows itself most markedly on the first children born in a family, while rickets manifests itself most markedly in the last child or children born.

Hygiene is recognized as of great importance in this disease, and Fournier considers the principles of hygiene as the most important factor in its cure. As for myself, I have been able to trace the cause of rickets in more cases to improper feeding than to anything else. It is the common answer to inquiry in this regard as to what the child has been fed: "Oh, the child has been eating just what the rest of the family eat," and this is said of a child a few months old.

Hand-fed infants are extremely liable to the disease, and especially is this so when fed starchy food. It has been said that rickets could be produced in an animal by feeding lactic acid, at the same time restricting the amount of calcareous matter, but it would seem that the want of calcareous matter in the food was the more important element, and not so much is made of this point as formerly.

A form of this disease, which has not received much attention, is called by Eugene Vincent "local inflammatory rickets." He describes it as produced at one end of a long bone by inflammation at the other end. I have seen a few cases that might be classed under this head.

Symptoms.—The symptoms of rickets have many of them been described under the head of pathological anatomy. The disease so often follows a spell of sickness that it is difficult to say when the disease began. It will be noticed that the child is peevish and cross; it is restless at night with a tendency to kick off the bed clothes; there is often flatulence with pasty stool. A symptom often observable is tenderness of the whole body. The child seems to dread to be handled. The healthy child delights in exercise and loves to be dangled in the air; the rickety

child dreads exercise and seems most contented when left alone; the rickety child perspires freely, both when asleep and awake, especially is this so about the head. Later on the bone changes take place. The ribs are beaded; the chest changes its shape; the fontanelles remain open much longer than normal; the contour of the head is changed; craniotabes is noticed; dentition is delayed, the epiphyses of the extremities are enlarged; the limbs are deformed; walking is delayed, the child assumes peculiar attitudes—the spine sometimes in kyphosis, sometimes lordosed, if able to stand the limbs are spread apart. To these symptoms may be added the symptoms of broncho-pneumonia. With this array of symptoms the diagnosis becomes easy.

Prognosis.—The prognosis of rickets as to life is very good. Only a few of the more severe cases die. I recently had a very severe case of rickets in a child of fifteen months, that died of broncho-pneumonia complicated by diarrhoeal troubles. This child had never walked, its limbs being very soft and pliable, and accompanying this were all the marked signs of rickets. In the mild cases the diagnosis is often not made out and yet the child entirely recovers. In the moderately severe cases the bones soften and become deformed, then arrest of the disease takes place, and the bones harden in the deformed position. Children so affected never reach full size and they always bear marks of the disease. It is only in the mild cases that the child outgrows the deformity, so that it is a serious mistake to let these children go untreated, often at the recommendation of the physician, being assured that the child will grow straight. At this stage they only require mild treatment for the deformity, and this mild treatment they should have.

The complicating diseases which these children are liable to are those of the respiratory tract, and these diseases they bear badly especially if the chest is much deformed. Bronchial catarrh and broncho-pneumonia are especially to be feared. Whooping-cough is badly borne, and measles if attended by bronchitis or broncho-pneumonia is a dangerous complication.

Treatment.—The treatment of rickets is clearly indicated by the pathology and etiology. Healthy nutrition must be restored. The child of a sick mother with milk of poor quality and small of quantity must have additional food; if two years old it should be weaned. Naturally the diet of a rickety child must vary with its age. The following diet is given by Erastus Smith, and for the average case can not be much improved: breakfast, a cupful of milk with a teaspoonful of Mellins' food dissolved therein; at 11 A.M., a cupful of milk containing fifteen drops of saccharated solution of lime; dinner at 2 P.M., a tablespoonful of pounded mutton chops with stale bread and gravy; or, a tablespoonful of the flower of broccoli, well stewed with gravy, bread and butter, and toast water. Supper at 6 P.M., same as breakfast, or a soft boiled yolk of egg provided no meat has been eaten. If the child is a year old or younger and is hand fed the milk should be diluted with lime water or barley water. The proportion is two parts of milk to one of water, or in some cases it may be reduced to equal parts of milk and barley water.

Of nearly equal importance with the food is the hygienic measures. Strict cleanliness must be ob-

served in connection with the feeding apparatus and the food. Every day the child should receive a tepid bath; cleanliness must be observed in dressing the child, there being no stint in the changes of its linen and napkins. It should be dressed warmly but not bundled up. The child should be kept in a warm and light room with plenty of ventilation; in pleasant weather the child should be kept out doors as much as possible.

Among the therapeutic measures cod liver oil, iron and the hypophosphites rank high. Phosphorous is highly spoken of by many. Jacobi, of New York, gives the official oleum phosphoratum ($\frac{3}{16}$ gr.) Ledeschi makes applications of galvanism to the spine and claims better results than with phosphorous alone.

Treatment of Deformities.—The treatment of the deformities resulting from rickets falls within the province of the orthopedic surgeon. For the milder cases mild treatment only is required, the simplest of which is the building up of the sole of the shoe. For bow-legs the shoe is built up from one-eighth to three-eighths of an inch on the outside of the shoe; for a knock-knee the shoe is built up on the inside. Before beginning the treatment a tracing is taken of the deformity and after wearing the built up shoes for several weeks the tracing is again taken. If improvement is noted the treatment is continued to a perfect cure. If the deformity is increasing, or after eight weeks there is no improvement, this form of treatment is abandoned and braces are used. Of course, the above method is only indicated in the milder cases. For the severer cases braces are indicated in the start. The idea to be carried out in these braces in rickety deformities is three point pressure—two on concave side of the limb and one on convex side and at the point of greatest convexity. To have these pressure points always at the same place the brace must be carried down to a foot plate, or up to a pelvic band; the former is usually the simpler method. Pressure is obtained at the point of greatest convexity by means of a lacing. If by the use of braces correction of the deformity is not obtained there remains osteo-clasis and osteotomy. Since the days of antiseptic surgery osteotomy has been found to be a perfectly safe procedure and on account of its precision is preferred by most operators. By means of a small osteotome the bone is easily broken, the deformity corrected, the parts dressed antiseptically and the limb fixed in plaster of paris. At the end of four or five weeks the plaster is removed and the union is found firm.

As a safeguard braces are sometimes worn for several weeks or perhaps a month or two after removing the plaster.

In the lower extremities we find the femur bent with convexity outward; the most common curve for the tibia and fibula is the simple outward curve recognized as bow-legs. In severe cases the lower limbs are so twisted as to have received the name of grape-vine legs. In these cases the femora at the upper portion are bent outward, at the lower portion they are bent inward forming a marked knock-knee: the tibiae are bent, etc.

To remove nitrate of silver stains from the fingers, paint the blackened parts with tincture of iodine: by applying ammonia, the iodine will be bleached, leaving white instead of black stains.

THE REMOVAL OF THE TOOTH PULP BY THE USE OF COCAINE.

Read in the Section of Oral and Dental Surgery, at the Forty-third Annual Meeting of the American Medical Association, held in Detroit, Mich., June, 1892.

BY EDWARD C. BRIGGS, M.D.,
OF BOSTON, MASS.

In October, 1890, I read a paper on this subject before a society in Boston and recounted many successful operations done since the preceding May. Since then I and some of my neighboring associates have been so successful that I feel constrained to bring the matter before this Association for a wider field in which to sow such good seed. In almost all cases of exposed pulps the pulp can be paralyzed and removed with no pain or discomfort to the patient. Cases which would seem most antagonistic to any radical treatment yield most gracefully to this.

Pulps of known irritability which would resist arsenious acid are satisfactorily disposed of by this method. Teeth are not "devitalized" by this treatment, as is so often the case with strong caustics, but are simply made "pulpless"—retaining their color and vital connection with the jaw.

The immediate root filling which is a part of the operation seals the tooth before germs can get in, and there is no abscess to be feared.

To operate it is necessary to have, 1, a tightly packed, smoothly running hypodermic syringe, with a flexible, blunt point. This latter condition I obtain by putting the point of a Dunn syringe into a hypodermic syringe.

2. A freshly prepared 20 per cent. solution of hydrochlorate of cocaine. (I have not yet had the opportunity to experiment with so-called milk of cocaine, which is suggested as being better.) Having an exposure of the pulp (the smaller the better), first apply on cotton some of the cocaine solution. This in a few moments makes the exposed part approachable, and if the opening through the dentine into the pulp is not as large as the end of the syringe point the syringe can be immediately placed over the point of exposure.

Having adjusted the syringe point, the piston is then to be firmly and steadily pressed down slowly at first and with increasing pressure, finally to be pressed down with considerable force, carrying the solution up and around the pulp to its extreme end. At the first impact of the liquid against the pulp the patient sometimes feels a shock—not worse, however, than one gives the patient when feeling with a probe to see if previous application of arsenious acid has done its work. If now the syringe point has been properly directed and fits over the exposure or into the opening in dentine so as to allow but little back flow, the operator can immediately open freely into pulp chamber with a bur, remove the pulp from the canals with barbed broaches; or even better when possible, enlarge the canals and remove the pulp at same time with a Gates-Glidden drill.

The advantage of this latter method lies in the fact that after the pulp has been entirely removed by a broach, if there is any delay in putting in the filling the inner walls of root or roots become sensitive again and it is as impossible to pass a probe into them as when the pulp was *in situ*.

A case or two by way of illustration:

Miss L. had been in Philadelphia during the winter, and

having gone away without the usual autumn examination a capped pulp had come to grief and an eminent dentist in Philadelphia had applied, presumably, arsenious acid. The patient returned to Boston with cotton dressing in the tooth and reported to me the day before departing for Europe, wishing to have the tooth filled. She said the tooth was "dead," but when I passed a probe into the distal root, I found it very much alive. It took but a moment, however, to pass a small syringe point down into the root, inject the cocaine rather forcibly, and then with barbed broach remove quite a sizable piece of root pulp. The roots were then washed with antiseptics, dried, and filled with gutta percha.

This case is typical of a large class, and we all of us have or have had teeth with "life in the end of the roots" which have baffled our efforts to completely remove, and which therefore we have had to keep dressed and temporarily filled for months and even years waiting for complete death. As a fellow practitioner remarked to me the other day, the operation was worth everything to us for just those cases alone.

Mrs. R. is a patient of my brother's. He was called to see her for the first time in her sick room where she had been a nervous invalid for over a year. Two or three teeth presented exposed pulps. My brother thought to disturb her least by making application of arsenious acid. It was with the too often result—inflammation, pain, and no destruction of pulp. He then tried the method described here, and removed the pulps of two teeth without the slightest shock or pain to the patient. This too under the most disadvantageous circumstances at the residence of the patient. I have the records of fifty or more cases almost all of which can be classed as perfectly successful. Where failure has been the result it has been due to defect in carrying out the detail of the operation as described. Failure to get syringe point directly over exposure; failure to have syringe in perfect working order; failure to use at least a 20 per cent. solution; and last but not least, neglect to have a fresh solution of the drug.

The operation must be done carefully, methodically, exactly—as we specialists have to do our work. When so done it will prove a success and a great boon to the profession. It is hardly necessary to add that proper care must be taken to prevent the patient swallowing any of the drug, using, as is necessary, so strong a solution.

PNEUMONIC FEVER—ITS SYMPTOMATOLOGY.

BY EDWARD F. WELLS, M.D.,
OF CHICAGO.

INTRODUCTORY.

From 1874 to 1886, a period of twelve years there passed under my observation four hundred ninety-eight cases of pneumonic fever. These were encountered in private family practice and in a rural neighborhood, inhabited by natives of the North of Germany and their descendants. They were, almost without exception, members of families in good circumstances, occupied comfortable dwellings, dressed and lived well and were exposed, to an extent much less than ordinarily, to the inclemencies of the weather, the hardships of excessive toil and the cares of want. They were, moreover, of a parentage largely free from pulmonary consumption and cancer and wholly free from syphilitic taint.

Carefully kept clinical histories of the cases above referred to have been preserved and it is an analysis

of these which serves as a basis for this study. In addition to this original material I have not hesitated to compare my observations and conclusions with those published by others.

The symptoms of pneumonic fever are usually clear and unequivocal, yet they are not rigid and immutable, but are endlessly modified by a great variety of circumstances. They are, for the most part, highly suggestive but not pathognomonic. In this, as in so many of the fields of medical science, we find that immediately we have accumulated an assemblage of affirmatory truths sufficiently large to serve as a basis for the formulation of a rule, numerous contradictory facts of more or less weight spring up to create distrust or compel exceptions. Nature persistently refuses to be confined in her marvelous operations by the restricting regulations of the conventionalist. Disease, of whatsoever name or character, should be viewed as an expansive, and not fully explored whole, and in an inquiring and liberal spirit. There can be no question as to the value to be placed upon the study of the ordinary and typical cases of an ailment, but if we do not desire to too narrowly confine our views we must not overlook and ignore the unusual, the complicated and the anomalous cases—and it will be found that in these varieties are comprehended a very large contingent of those encountered. Entering now upon the consideration of the clinical features of pneumonic fever in such an elastic mood we will quickly discover that the "exceptions to the rule" will engage quite as much of our attention as the law itself.

In viewing this malady from a clinical standpoint we are at once and irresistibly impressed by the fact that we are not looking upon a picture of still life, but that the patient is in the midst of a raging, momentous and terribly real conflict, in which the opposing forces are pitted against each other in an endless succession of varying combinations.

PRODROMATA.

Although an abrupt accession is the rule in pneumonic fever, yet a distinctly appreciable prodromal stage is present in a very considerable proportion of cases. This feature is particularly noticeable in some years, localities or epidemics. Thus in the great North American epidemic of the second decade of the present century a prolonged initiatory stage was the rule, and the same has been true of some other outbreaks.

An examination into the nature of the premonitory symptoms as they have been recorded in the histories of my cases leads to the conclusion that they are so varying as to almost defy analysis, and so equivocal that a diagnosis of approaching pneumonic fever can not be made from them. When present there is nothing peculiar about them:—nothing, indeed, which could lead the observer to a just conclusion as to whether the patient was to be the subject of a nameless slight indisposition, typhoid fever, variola, malarial ague, dysentery or—pneumonic fever. In short they are those peculiar to infectious diseases in general and are not particularly distinctive of the one under special consideration. The patient may complain of anorexia, nausea, vomiting, constipation or diarrhoea and other gastro-intestinal disorders; of headache, drowsiness or sleeplessness, irritability and fretfulness, restlessness and listlessness and other cerebral symptoms; of cough, op-

pression and thoracic soreness; of epistaxis, coryza and sneezing; of languor, lassitude and weakness; of chilliness and feverishness; of fixed and fleeting pains in the back, limbs, chest, muscles, etc.:¹ of anemia, sallowness and jaundice, and of many other symptoms, continuing for a shorter or longer period until the disease declares itself in unmistakable character.

Premonitory symptoms, in a diagnostic point of view, are of greater value in the aged than in the young. A dull headache, with drowsiness, irritability, sallowness, relaxation of the masseters, general weakness, anorexia and slight febrile movement has been, in my experience, so often the forerunner of an attack of pneumonic fever in elderly persons that I view it with suspicion and apprehension. One other symptom has particularly attracted my attention and that is an indefinite anxiety or alarm—a feeling of impending danger. This I have seldom observed as premonitory to any other disease—the nearest approach to it being the anxious restlessness which sometimes precedes gastric hæmorrhage.

My 72nd case is a good example of an assemblage of premonitory symptoms:—A young man, aged 20, of German parentage, and of excellent general health, was taken, May 16, 1879, with epistaxis and lassitude. Of an energetic nature he could now scarcely prevail upon himself to arise in the morning or to give up his chair after being seated—it was a task for him to move about, although he was not, as yet, weak. In a day or two his appetite failed and the sight of food became obnoxious. His tongue became coated and a foul mucous secretion accumulated in his mouth, especially in the morning. After a few days he became feverish, with suffusion of the eyes, slight deafness, dryness of the lips and restlessness. His bowels became confined and his urine was scanty, high-colored and deposited a copious sediment upon cooling. He was ill—too sick to be up and not prostrated enough to willingly lie in bed—yet careful examinations, repeated daily, failed to show any local cause for the symptoms, which were, in turn too indefinite to permit the diagnosis of any systemic disease, until, on the 26th inst., a severe chill was followed by all the ordinary symptoms of a severe attack of pneumonic fever, terminating in convalescence on the seventh day.

Andral's twelfth case is also a good illustration of this feature:—A man, aged 33, of a full and plethoric habit, for some time experienced headache, transient dizziness and epistaxis. On Dec. 16, 1822, when arising in the morning, he felt generally ill, with violent headache, tinnitus aurium, a sensation of burning heat over the entire body, etc. These symptoms continued and the face became flushed, eyes injected, pulse accelerated, tongue coated, etc. There was exaggerated pulsation of the temporal arteries, general debility, dullness of the intellectual faculties, anorexia, thirst, constipation, scanty urine and a slight cough. After an attentive examination the disease could not be located—all the organs seemed to be excited and upon the verge of inflammation, but in none was this an actual fact. These symptoms continued until the night of the 20th, when he awoke with a severe pain in the right side of the chest, which became almost insupportable when he inspired deeply or made the slightest movement. From this time the case assumed ordinary features and the patient died on the night of the 29th.²

This stage may be modified by peculiarities of the prevailing medical influences, the presence in the system of the germs of other diseases, etc. Thus in the case of persons residing in malarious regions there may be chilliness, followed by febrile reaction, recurring at regular intervals for several days before the pneumonic disease is fully established.

A girl of 12 years had a chill on the morning of April 25,

1881, followed by fever and profuse perspiration. In the afternoon she was up and at play, ate heartily and slept well during the night. On the following morning she had a second attack, accompanied by bilious vomiting, delirium and convulsions. This exacerbation continued until after midnight, but ended as the first in a complete intermission. On the third morning fever again recurred and became continuous. It was not, however, until the following day that the disease assumed a pulmonary aspect and could be recognised as pneumonic fever—the lower lobe of the left lung being the seat of the local inflammation.

A lady, aged 74, was taken with tertian ague in Sept., 1884. After having been three weeks ill she came under my observation on Oct. 10. Under treatment the ague promptly ceased and the patient soon regained her usual health. On Nov. 2 she had a chill at 10 A.M., followed by fever and profound prostration. On the following morning she felt better, arose and walked about the house, but was seized by a second chill at 11 A.M. This was more severe than the first and was followed by a higher fever and even greater prostration. During the night she was delirious. Next morning she expressed herself as feeling better, yet she preferred remaining in bed. At noon she had a third profound chill, followed by ardent fever, delirium, coma and consolidation of the entire right lung. She coughed a few times and expectorated characteristic sputæ, but she remained in a dazed stupor until death occurred two days later. At the autopsy the entire right lung was found hepatized (red), with the markings of the ribs plainly shown.³

INVASION.

The invasion of pneumonic fever is, in the majority of cases, sudden. The patient is usually taken with a chill, accompanied or quickly followed by fever, cough, dyspnoea and thoracic pain⁴. This⁵ was the mode of access in nearly two-thirds of my cases, and the experience of other observers has been similar.

Thus in the Plague of Athens, "in general the persons were attacked by it suddenly, while in full health and without ostensible cause,"⁶ and such has been the language of the historians of a majority of the epidemics which have occurred and of the observers of individual cases⁷. Fox⁸ says that "in a large proportion of cases the disease commences suddenly and without previous warning, in persons who up to the moment of seizure had felt perfectly well, and it is not unusual⁹ for the invasion to occur during the night after the patient has gone to bed in his usual health.

To the patient there is something very alarming in the remarkable suddenness—like an electric shock from a concealed battery—with which the initial chill of pneumonic fever interrupts the course of health. Without feeling in the least unwell he retires to bed, to be awakened in the middle of the night to find himself the central figure in the midst of a raging storm of rigors. His teeth chatter; his feet freeze: his knees knock together; frigid trains speed up and down his back and spread out over the surface; his breathing is oppressed; some demon weighing tons sits upon his breast: he breathes deeply, he coughs, and is horrified at the keen pain which shoots through his side: he clasps the painful spot and coughs again, but all in vain for the agonizing pain is not lessened; his head aches—throbs to the

³ In studying these cases in which malaria evidently played an important rôle in the prodromal stage, we must not lose sight of the fact that distinctly intermittent or remittent symptoms may be present without the slightest suspicion of malarial infection. See Green, Quain's Dic. Med., N. Y., 1883, p. 880; Huss, Lungenentzündung, Leipzig, 1861, S. 37; Kottwitz, Inaug. Dissert., Halle, 1882, S. 33; Taylor, N. Y. Med. Jour., 1887; Thieme, Inaug. Dissert., Jena, 1865, and many others.

⁴ Satterthwaite, Phila. Med. News, Jan. 5, 1889, p. 3, places the order of events as follows:—(1) Pain, prostration, cough; (2) severe chill; (3) nausea, and (4) rise of temperature. This has not been the case in my experience.

⁵ I refer to the sudden onset of the disease.

⁶ Collins' Translation of Thucydides, N. Y., 1883, p. 49.

⁷ See Cleghorn, Epidem. Dis. Minorica, London, 1762, p. 261; Huxham, Epidemic Diseases, London, 1748, Vol. ii, p. 39; Stokes, Med. Times and Gaz., May 26, 1855, et al.

⁸ Reynold's Syst. Med., Phila., 1880, Vol. ii, p. 163.

⁹ In my experience nocturnal invasion has been very common.

¹ Pause—Lungenentzündung, Leipzig, 1861, S. 67,—especially noticed aching of the joints in the afternoon and at night, but in my experience this was not observed oftener at this period of the day than at other times—beyond the evening exacerbations noticeable in nearly all diseases.

² Andral, Clin. Med., Vol. ii, p. 132.

point of bursting, he will say—and all his joints are racked with pain; he is dizzy; his brain reels, and all his sufferings are aggravated by the vomiting which ensues. The scene rapidly changes. Soon ardent fever is developed; the face is flushed; the cheeks glow; the skin is dry and burning hot; the pulse bounds excitedly; the dyspnoea continues; thirst is intense; the cough is acutely painful; the expectoration becomes bloody, and the hapless victim, with an expression of alarm, anxiously appeals, with his eye, to each one visiting his bedside. Thus the patient reposes in bed in a constrained posture, a picture of alarm, suppressed excitement and human suffering, and awaits with dread each coming event until, in a few hours, the disease has reached its height.

Usually the pulmonary symptoms declare themselves at once, but in a certain proportion of cases we have all the indications of a severe illness without any discoverable local manifestation. There is the sudden or gradual access of febrile symptoms but absolutely no trace of pneumonic changes can be discovered, until, after the lapse of a more or less prolonged period, they disclose themselves by the development of characteristic local symptoms and signs. We have, in these instances, systemic fever without local changes, as we have, at the end of the attack, local affection without fever.¹⁰ That this is, in the majority of instances, a late localization of the disease, and not merely an obscuration of the early physical signs, is clearly proven by the fact that in these cases the local affection pursues an ordinary course as to duration and sequence of the signs, which would evidently not be the case if they were only hidden.

A girl of 14 years was attacked during the night with a chill, followed by fever, delirium, muscular tremor, etc. The fever was continuous and all the symptoms indicated that the patient was laboring under a grave disease. The breathing was peculiarly oppressed and there was a slight cough, yet daily attentive examinations of the chest failed to detect any signs indicative of local affection until the fourth day when it was possible to demonstrate a beginning consolidation of the base of the left lung. On the next day the local phenomena were unmistakable, and the case pursued an ordinary course toward recovery.

Bolles' case was as follows:¹¹—A young man was taken ill, June 17, 1880, with febrile symptoms, chilliness, some cough, quick pulse and flushed cheeks. By the third day he was so low that two competent physicians expected him to die. At this time his lungs were carefully examined and absolutely nothing abnormal discovered. The chest expanded and contracted perfectly and the respirations were only 20 per minute. On the fifth day there was noted a patch of bronchial respiration and bronchophony, not very well marked, at the inner border, of the left scapula. On the sixth day this patch was enlarged and there was dullness on percussion, and on the seventh day the disease was fully developed.¹²

The late localization of the disease has an important bearing upon our conception of its nature, inasmuch as it affords strong presumptive evidence that it is a general disorder with a local manifestation.

¹⁰ Cases of this description are in my collection and they have been observed by Andral, Op. cit., p. 181;—Baginsky, *Pneumonie u. Pleuritis*, Tübingen, 1880, S. 10;—Bolles, Boston Med. and Surg. Jour., Feb. 3, 1881, p. 105;—Cincinnati Lancet and Clinic, Nov. 3, 1883, p. 398;—Cleghorn, Epidem. Dis. Minorien, p. 261;—Heiss, Inaug. Diss., München, 1857, S. 6;—Sturges, London Lancet, N. Y., 1881, Vol. 1, p. 287;—Tyson, Ibid., 1881, Vol. 1, p. 233;—et al.

¹¹ Boston Med. and Surg. Jour., Feb. 3, 1881, p. 105.

¹² Grisolle, *Traité de la pneumonie*, p. 181, speaking of these cases says that in some he has "noticed for four days intense febrility without being able to discover on the part of any organ, and especially on the part of the lungs, any lesion explaining it," and Andral, Sup. cit., makes a similar statement.

By some writers who consider cold an efficient cause of the malady it has been thought that the period intervening between the exposure and the development of the attack is a reasonably exact measure of the duration of the stage of incubation.

Thus a gentleman riding against a raw wind felt chilly, and upon arriving at his residence, an hour later, was seized with a rigor which ushered in an attack of pneumonic fever.

A farmer engaged, at noon, in shocking wheat exerted himself greatly, in order that he might complete his work before the advent of a threatened storm, and perspired freely. In this condition he was overtaken by a shower of cold rain and hail and became thoroughly wetted. Although he quickly exchanged his dripping garments for others which were warm and dry, yet he was taken with a pneumonic chill six hours later.

A man engaged in chopping wood and perspiring freely, ceased work and sat down for a long talk with a neighbor. The March day was cold, raw and windy and the laborer's chest was covered only with a thin cotton shirt. Upon rising he felt tired, stiff, sore and chilly. This was about 4 p.m. During the night he was restless, slept but little and had frightful dreams. All next day he felt badly, and had headache, articular pains, anorexia, vomiting, irritability of temper, thoracic soreness and an insignificant cough. In the evening he had a rigor, followed by a severe attack of pneumonic fever.

A woman at the wash-tub perspired freely and exposed herself, with scanty clothing, to a cold wintry wind. Three hours later a severe pneumonic chill sent her to bed for a ten day's illness.

I might multiply these instances from my own records and from the published experience of others¹³ but the result would be simply a tedious repetition of similar cases. In all my cases, however, the attack followed quickly upon the exposure.

This is in exact accord with the experience of LaRoche¹⁴ who, speaking of the vicinity of Philadelphia, says that a prolonged incubation may have been noticed elsewhere "but so far as the experience of the physicians of this section of the country extends, it may be safely averred that nothing of the sort has occurred, and I tax my memory in vain for a reference bearing on this point to some of the many publications, foreign and native, that have passed through my hands. Never and nowhere have I seen, heard or read of a case in which the attack has come on, whether abruptly or preceded by premonitory symptoms, more than a few days after exposure."

The fallacy of all this is, however, obvious. Pneumonic fever is certainly caused by a *materies morbi, sui generis*. That exposure to cold may, and probably does, place the system in a condition favorable for the reception and action of the specific cause may be admitted, but this exposure is not the essential element. Now, if it be granted that another, and a special agent, besides cold, is necessary for the production of the disease, we can never be certain whether the specific germ has previously entered the economy and, lying dormant and awaiting a favorable opportunity to begin its work, or whether it enters the system at the identical moment of "catching cold," or, finally, whether the entrance is subsequently effected.

In this connection it may be mentioned that patients often mistake the initial chilliness or rigor of pneumonic fever for exposure to cold, and this source of error and fallacy must be born in mind when considering this question.

The disease has also been considered contagious, and it has likewise been proposed to measure the period of incubation by estimating the interval between the contact with other cases and the outbreak

¹³ Ziemssen, *Pleuritis u. Pneumonie*, 1862, S. 159, gives a long list of cases.

¹⁴ *Pneumonia*, Phila., 1854, p. 391.

in the patient. Here, again, arise the same doubts as in the preceding series of cases.

It follows, then, that we are, as yet, unable to state, with any degree of certainty, the duration of the stage of incubation. Such stage, nevertheless, does exist, and the future may delineate its characteristics and measure its exact duration.

CHILL.

A chill is almost always the initial symptom of the sudden invasion of pneumonic fever. It is usually accompanied by rigors and is generally more intense and pronounced than in any other malady except pyæmia¹⁵ and malarial ague. The duration of the chill varies from a few minutes to several hours;¹⁶ its decline being gradual.¹⁷ In some cases the chill is replaced by a sense of chilliness, alternating with flashes of heat—if the patient is in bed and quiet he feels feverish, but with the slightest jar or movement chilly sensations course up and down the back, spreading thence, as from a centre, to various parts of the body. This continues for a short time and is replaced by a sensation of heat until another movement causes the chilliness to reappear. The profound chill often passes off with this sort of chilliness. The duration of this recurrent chilliness is usually longer than that of the decided chill—sometimes being twelve or more hours. There is usually a single chill, although there are occasionally multiple recurrences.¹⁸ It usually immediately precedes the development of the local symptoms, but in some cases it may precede these by several hours or days. The initiatory chill was present in 86 per cent. of my cases. In 199 cases the chill was noted as being severe; in 97 there was "a chill;" in 76 there was "a light chill," and in 56 there was simply "chilliness."

The initiatory chill was present in 92.6 per cent. of Fisser's¹⁹ cases; in 92.5 per cent. of Lebert's²⁰ cases; in 82 per cent. of Chomel's²¹ cases; in 80 per cent. of Huss' cases²²; in 79 per cent. of Grisolle's cases;²³ in 60 per cent. of Speck's²⁴ cases; in 37 per cent. of those analyzed by Stortz;²⁵ in 63 per cent. of Schapira's²⁶ cases; in 94 per cent. of Wunderlich's²⁷ cases; in 65 per cent. of Fenwick's²⁸ cases; in 77 per cent. of Louis's²⁹ cases; in 75 per cent. of Lépine's³⁰ cases; in 72 per cent. of Kocher's³¹ cases; in 69 per cent. of Bleuler's³² cases; in 64 per cent. of Fox's³³ cases; in 60 per cent. of Durand-Fardel's³⁴ cases; in 50 per cent. of Juergensen's³⁵ cases; in most of Gerhard's³⁶ cases and in all of the 63 cases of the Loberg epidemic.³⁷

As to the severity of the chill Fisser³⁸ found that of 219 cases, 84 had rigors, 41 had a chill, 42 had a light chill, 35 had a very light chill and in 17 the chill was lacking.³⁹

Scheffels⁴⁰ in describing the appearance of the chill says that the patient suddenly felt a sensation of

warmth, then heat, and, a short time afterwards a chill.

Chomel⁴¹ thought that when the attack began at night the chill was generally absent. This, however, is contrary to my experience. Early in my professional career I was impressed with the remarkable frequency with which the pneumonic chill occurred at night and during the hours of sleep, and subsequent observation has only confirmed my early conclusions; for of 428 cases the chill occurred between the hours of 9 P.M., and 6 A.M., in no less than 231.⁴²

Chill is, however, absent in certain forms of the disease or conditions of the patient. Thus in the case of young children it is usually replaced by slight chilliness, coldness of the extremities, nose and ears, paleness of the surface, blueness of the nails, etc.⁴³ In the aged, also, an initial chill is less frequent than in adults, but when a chill occurs it is more distinctive of pneumonic origin. In the weak, cachectic and diseased it is also often lacking.⁴⁴ This is also true of some epidemics.

Juergensen⁴⁵ states that very fleshy persons escape the chill, but I can not confirm the statement, it so happening that every fleshy person whom I have observed with this disease had a very distinct initiatory chill.

Chills may occur after the disease has been fully established⁴⁶ and even during convalescence.⁴⁷

A young lady, 17 years of age, was taken, Apr., 28, 1880, with a chill, followed by cough, pain in the right side, sanguineous expectoration and the ordinary signs and symptoms of pneumonic fever locally affecting the apex of the right lung. Crisis occurred on the seventh day and convalescence seemed fully established, when, three days later, she had a second severe chill and rigor, followed by a pulse of 116 and a temperature rising to 102.5°. The febrile symptoms continued only a few hours, after which convalescence was uninterrupted.

A CASE OF SPINA BIFIDA WITH CURIOUS DISTURBANCES OF THE SEXUAL FUNCTIONS.

BY SYDNEY KUH, M.D.,

FROM CHICAGO.

ASSISTANT AT THE CLINIC OF PROF. ERB, IN HEIDELBERG.

Philipp Eller, twenty-six years of age, a tailor, was admitted to my ward on the 9th of July, 1891. His father had died from dropsy, there was perhaps some case of phthisis in the family, certainly no nervous taint in the ancestry. The patient has ever since the time of his birth, a slight prominence in the sacral region of the spinal column upon which hair grew ever since he can remember. It cannot be ascer-

¹⁵ Including puerperal fever.

¹⁶ In my cases the duration was from a few minutes to six hours. Andral, *Med. Clin.*, Vol. ii, p. 140, mentions a case in which shivering continued for more than five hours. See also Schuyler, *N. Y. Med. Jour.*, Oct. 13, 1883, p. 406.

¹⁷ This point seems to have escaped the notice of writers.

¹⁸ See also Schapira, *Inaug. Dissert.*, Würzb., 1877, S. 29; Stortz, *Inaug. Diss.*, Würzb., 1884, S. 57, and others.

¹⁹ *Deutsche Arch.*, f. k. Med., Bd. xi, 1873, S. 391.

²⁰ *Klinik d. Brustkrankheiten*, Tübingen, 1873.

²¹ *Pneumonie*, Leipzig, 1841.

²² *Lungenentzündung*, Leipzig, 1861, S. 33 u. 114.

²³ *Inaug. Diss.*, Marburg, 1870, S. 7.

²⁴ *Inaug. Diss.*, Würzb., 1884, S. 57.

²⁵ *Inaug. Diss.*, Würzb., 1877, S. 29.

²⁶ *Inaug. Diss.*, Tübingen, 1858, S. 25.

²⁷ *Lancet*, 1891, Vol. i, p. 248.

²⁸ *Traité de la pneumonie*, Paris, 1811.

²⁹ *Rech. sur Fiev. Typh.*, T. ii, p. 128.

³⁰ *Pneumonie*, Wien, 1883, S. 38.

³¹ *Lungenentzündung*, Würzb., 1866, S. 38.

³² *Inaug. Diss.*, Zürich, 1865.

³³ *Reynold's Syst. Med.*, Phila., 1880, Vol. ii, p. 163.

³⁴ *Mal des vieillards*.

³⁵ *Ziemssen's Handb.*, Leipzig, 1877, Bd. V, S. 83.

³⁶ *Am. Jour. Med. Sci.*, Vol. xiv, p. 328.

³⁷ *Am. Jour. Med. Sci.*, Jan., 1883, p. 262.

³⁸ *Op. cit.*

³⁹ For further information consult Doubleday, *N. Y. Med. Rec.*, Mar. 28, 1885; Hermann, *Lungenentzündung*, München, 1880; Pause, *Lungenentzündung*, Leipzig, 1861; Stortz, *Op. cit.*, S. 57, et al.

⁴⁰ *Inaug. Diss.*, Würzb., 1886, S. 5.

⁴¹ *Op. cit.*, S. 151.

⁴² See also Fricke, *Inaug. Dissert.*, Göttingen, 1886, S. 22; Hart, *Jour. Am. Med. Ass.*, Oct. 10, 1885, p. 393; Juergensen, *Op. cit.*, S. 393, and others.

⁴³ Convulsions, sopor, coma, etc., sometimes take the place of the chill, even in adults, as shown by the cases reported by Farquharson.—On some Forms of Pneumonia, London, 1871,—and by two in my own collection. For further information see Holt, *N. Y. Med. Rec.*, Feb. 14, 1885, p. 174 and others.

⁴⁴ See Greneau de Mussy, *Gaz. des Hôp.*, Avr. 9, 1846; Huss, *Op. cit.*, S. 33, and others.

⁴⁵ *Op. cit.*, S. 83.

⁴⁶ See also Haw, *London Lancet*, 1887, Vol. ii, p. 911; Heiss, *Inaug. Diss.*, München, 1857; Sturges, *Nat. Hist. Pneumonia*, London, 1876; Swett, *Dis. Chest*, N. Y., 1856, p. 99, and others. It has been supposed that chills occurring after the disease has been established were indicative of the involvement of fresh pulmonary territory, but my cases afford no evidence in favor of this view.

⁴⁷ Several such cases are in my collection.

tained at what time he learned to walk, but he is positive that he could go to school without assistance at the age of six years. He could not, however, walk as well and as long as other boys of his age, the legs, especially the left one tiring rapidly. Later on the lower extremities, particularly below the knee, remained unproportionately thin, and the toes stood in abnormal position, all of these symptoms being more pronounced on the left side. There was no spontaneous pain. Sensation had always been impaired somewhat in left leg and foot. It can not be ascertained with any degree of certainty whether vaso-motor or secretory disturbances existed.

The discharge of urine had always been impaired, and there had been chronic constipation; both excretions invariably pass off together, so that the patient is compelled to sit on the water-closet whenever he wishes to pass his urine. The sexual impulse was but very slight. He had never attempted cohabitation. Up to about a year ago he had occasionally ejaculations of semen accompanied by slight erections of very short duration, especially when he was compelled to move rapidly or to do fatiguing, heavy work. These erections were also very frequent while the patient was being shaved, came on regularly whenever the barber went over his face twice (gave him a "close shave") and also came now and then when he had his hair cut. There was never more than one ejaculation during one shaving or hair-cutting.

During his boyhood he suffered a good deal from headaches, which were accompanied by exhaustion and a sensation "similar to fever." During one of these attacks he, in his words, lost consciousness "and ran about the room, shrieking." There never had been any epileptic fits. He made but slow progress in school, learned with great difficulty. Strong odors immediately gave rise to headaches.

It happened now and then that somebody struck the prominence on his back. Immediately his lower extremities would fly from under him, he would fall on his buttocks, the legs taking the tailor position, and being utterly powerless. At the same time he had the sensation of something piercing his head, he would shriek and become unconscious for a few moments. His falling was connected with a sudden very intense pain in the legs and the head. For some time he could not succeed in arising, the entire body trembled, and he yelled loudly. For two days thereafter he would feel as though he had been whipped; as soon as anybody approached him he would begin to tremble in the apprehension that something might happen to his back.

There were never any signs of an affection of the cerebral nerves or of those of the upper extremities. The power of speaking was quite normal. No polyuria, but he had to urinate more frequently than other people, especially after having received a blow in the small of the back.

There had been no stiffness of the legs up to December 27, 1889, on which day he was taken with influenza, and on the following morning he noticed that his legs had become stiff and showed spasmodic contractions. No pain, no disturbance of sensation. After this attack of influenza the spastic symptoms increased in intensity, and since a year there is also tremor of the right, rarely also of the left arm after work. There has not been an erection or ejaculation for one year. When he was sewing the fingers of the right hand would occasionally spread asunder. This

exacerbation had been progressive up to the date of admittance to the hospital.

During the last year electricity and warm baths had been used, under which treatment his troubles grew worse. In the month of May, 1891, he suffered from an unknown disease, accompanied by fever.

State on admission.—Well built man of medium size. Muscles well developed. The intelligence of the patient is rather below the average; he is very talkative. The skull is very narrow in its anterior portion, very broad in the parietal region. The greatest circumference measures 57.3 cm., somewhat more than the average.

The cerebral nerves, the upper extremities and the thoracic and abdominal viscera are normal.

In the region of the sacrum in the median line there is a tumor approximately of the size and form of half an orange lying immediately below the skin and fluctuating. This part is very sensitive to pressure. The posterior osseous wall of the spinal canal is absent in the entire length of the sacrum. The tumor is covered with a dense growth of long black hair, its centre being occupied by a horizontal retraction of the skin. Below the prominence, corresponding to the point of the os coccyx the skin is adherent to the bone and retracted in the form of a funnel. Directly above the tumor, *i. e.*, in the lower part of the lumbar region, the spine is somewhat sensitive to pressure.

There is no marked atrophy of the lower extremities, the left being but slightly thinner than the right. There are fibrillary contractions in the muscles of both legs, more pronounced on the left than on the right side. The patient is able to move the limbs in all joints. The left knee is slightly flexed, cannot be extended completely, either voluntarily or passively. The M. ileo-psoas, the quadriceps cruris and peroneal muscles are parietic on the left side. There are marked tonic muscular spasms in the left, slighter ones in the right limb, especially in the flexors of the knee and the adductors. There is no disturbance of coördination, no intention-tremor. Both mechanical and electrical irritability of the muscles are unchanged, only that mechanical stimuli produce marked fibrillary vibrations. Pes equinovarus, more pronounced on the left than on the right side.

Sensibility.—There is a diminution of sensibility to touch in the right thigh, and in the left leg below the knee; of the sensibility to pain in the entire right lower extremity; of the sensibility to temperature in the left leg below the knee. The patient locates the sensations correctly.

Reflexes.—The abdominal and cremaster reflexes are normal on both sides, the right plantar reflex is not so marked as that of the left. No reflex from the tendo achillis. There is a reflex upon tapping the tendon of the M. tibialis posticus, also stronger on the left side. Adductor reflexes rather excessive on both sides.

The lower extremities perspire less than the rest of the body. They are covered with short black hair.

The urine contains neither albumen nor sugar. The temperature is normal; the pulse is strong, its rate varies from 80 to 112.

Treatment.—Galvanic current applied to the spinal cord and the lower extremities. Kalium iodatum 0.75–1.5 gr. pro die. After three days the patient is able to ascend steps without assistance, which he had

been unable to do. Later on he did not stand kalium iodat. well, and the medicine was changed to pills of argent. nitric.

On the 17th of September, 1891, Eller was discharged from the hospital. There were then no clonic contractions of the muscles nor pain. The patient was able to walk with greater ease, to ascend steps without difficulty. His weight had been increased by 6.5 pounds.

Remarks.—As to the diagnosis there can be no doubt that the patient suffers from spina bifida. The tumor of the sacral region covered by long hairs, fluctuating and evidently in connection with the central nervous system, the pes equino-varus, the disturbance of sensibility and of the functions of the sphincters are conclusive proofs. The trouble grew worse after an attack of influenza. Experience has taught that la grippe is both very liable to produce nervous disease of all kind and to aggravate existing ones. The curious disturbances of the sexual functions, especially their irritability to abnormal stimuli have to my knowledge, not been previously observed in cases of this kind.

A STUDY OF THE REQUIREMENTS OF THE AVERAGE PROSPECTIVE MEDICAL STUDENT IN 1892.

BY BAYARD HOLMES, M.D.

SECRETARY OF THE COLLEGE OF PHYSICIANS AND SURGEONS OF CHICAGO.

It has been often questioned whether the average medical student is better educated to-day than ten years ago or not. Not knowing the species then, I cannot answer.

I happen to have in my possession evidence of the scholarship of the average man who proposes to study medicine to-day. This evidence has come in the course of my regular correspondence during the past year. For the purpose of this paper I have selected one thousand consecutive correspondents and tabulated their educational qualifications. These are a continuous series and they include *every* correspondent, who gave me the necessary information, going back far enough to secure a necessary decimal, one thousand. None of them go further than one year back.

- | | |
|--|-----|
| 1. Number of prospective medical students having A.B., B.S., or other corresponding or succeeding degrees | 185 |
| 2. Graduates of High Schools which are accredited to State Universities | 211 |
| 3. Graduates of State Normal Schools or City Normal | 80 |
| 4. Graduates of Dental or Pharmaceutical Schools | 69 |
| 5. Holders of certificates of completion of pre-Medical course in universities | 25 |
| 6. Other adequate education but without diploma | 252 |
| 7. Total number who present evidence of sufficient education for admission to the College of Physicians and Surgeons, or of any college requiring only the minimum of the Association of American Medical Colleges | 822 |
| 8. Number who do not present evidence of such education though filling out the blanks in other particulars | 198 |

Total consecutive correspondents considered . . . 1000

Many of the best educated men are to be found in class 6. These men cannot present any diploma, but are in many instances better educated than the graduates of scientific or high schools. We would conclude then that less than twenty per cent. (18.5) of

prospective medical students are graduates of colleges with the bachelor's degree, that a little more than twenty per cent. (21.1) are graduates of accredited high schools, that two and a half per cent. only are graduates of pre-medical courses in universities, and twenty-five per cent. are able to pass an examination in English, mathematics, physics and Latin, as presented by the rules of the Association of American Medical Colleges. Thus it appears that only twenty per cent. of prospective medical students are shut out by the requirements of the Association. These statistics may encourage some timid schools to insist on this requirement of the Association.

It may be asked, are these statistics fair and reliable? So far as the students are concerned they are probably sufficiently reliable for our purpose. It may be reasonably premised that students who have the required education more readily fill out the blanks than those who cannot answer the questions in the affirmative. The blank was as follows:

Name. Age. Nativity.
Education. What?
Have you a degree?
Where obtained? Time required
Have you graduated at a high school?
If so, what did your course cover in Mathematics, Physics and Latin?
Have you studied in a medical college? What one? When?
Address. P. O.
County. State

Another source of error is to be found in the fact the correspondence was usually begun through physicians and educators and the names of those only were asked for who had "a good preliminary education." These statistics are derived largely from the six States surrounding Chicago.

With these facts before us it may be seriously asked if it is advisable to make the degree A.B. or B.S. a requirement for admission to the medical school. It is certain that all our schools could not make such a requirement. It would probably pay one or two favorably located schools to re-organize their methods and conclusions so as to give a course adapted to the educated student. Such schools would have a hard struggle for a few years, and would need a temporary or permanent endowment, but in time they would secure their own. Their course would be shorter. It would be conducted on different plans and by a different sort of men, but the success would be enviable.

At the college that I represent one hundred and twelve students asked for entrance certificates in October 1892; of these, one hundred and one presented evidence of scholarship from colleges or accredited high schools, eleven wrote the examination. One failed and was refused. Seven were unable to write the examination in Latin satisfactorily, and were conditioned in that study. Three wrote the whole examination satisfactorily.

THE laws of Michigan forbid any railroad within its borders to employ other than total abstainers from alcoholics as engineers, train-dispatchers, firemen, brakemen, or other railroad servants. The penalty is said to be \$500 for each offence. Yet many of the passenger boats in said State have open bars on board for the patronage of all.—*American Lancet.*

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SATURDAY, JANUARY 7, 1893.

THE ORGANISMS OF MALARIA.

LAVERAN's discovery in 1880 of organisms in the blood of malarial patients has been verified and elaborated by pathologists and clinicians the world over. In Italy the study of LAVERAN's organisms has been pursued with great enthusiasm and persistence, and we owe much of our knowledge of their nature, and of their relation to the various forms of malaria, to the labors of such men as GOLGI, MARCHIAFAVA, CELLI, FILETTI and GRASSI. The researches of the last two upon the structure of the organisms leave no doubt as to their animal nature, demonstrating conclusively the presence of vesicular nuclei, and it is now universally accepted that they belong to the protozoa, and their faculty of amœboid movement brings them under the rhizopoda. In the United States COUNCILMAN in Baltimore, OSLER in Philadelphia and in Baltimore, WALTER JAMES in New York, Dock in Galveston and Ann Abor, as well as many others, have been able to fully corroborate the results obtained by the European investigators. In India VANDYKE CARTER, Professor in the Grant Medical School of Bombay, has studied the organisms elaborately and found their demonstration to be of great value in the differentiation of malarial from other forms of fever. At the present time all modern clinicians make routine blood examinations in all doubtful fevers, and the diagnostic importance of the malarial parasites has been repeatedly emphasized by the report of cases from the clinics of America, Germany, the Scandinavian countries and elsewhere, many of them in regions where malaria is practically unknown, only imported cases occurring. The amœbæ have not yet been successfully cultivated artificially, but their etiological relation to malaria is considered quite evident because of their constant presence in its various clinical forms; because of the relation which GOLGI and other Ital-

ians have shown to exist between the phases of the development of the organism and the malarial paroxysm; because the morbid anatomy of malaria corresponds entirely to what would be expected from the distinctive effects of the parasites upon the red cells, namely: corpuscular disintegration and pigment accumulation, and their results such as capillary obstruction with organisms and detritus in all the important organs of the body in acutely fatal cases, and pigmentation, connective tissue increase and anæmia in chronic cases; and also because quinine, in arresting the clinical manifestations of malaria, appears to have a specific effect upon the amœbæ, which completely disappear from the blood.

There is considerable difference of opinion among the investigators as to the relation to each other of the varieties of amœbæ observed in malaria. It will be recalled that GOLGI and others have shown that the regular intermittents depend upon amœbæ with quite distinct morphological differences, all of which, however, are endoglobular and grow and become pigmented during the intermission, so that at the time of the paroxysm they nearly or quite fill the decolorized red cell, the pigment being in the centre of the amœba; as the paroxysm occurs the amœba undergoes segmentation into from six to twenty spores. The apyretic stage corresponds to the vegetative, the paroxysm to the proliferative phase in the evolution of the amœba. If the vegetative phase occupy twenty-four hours then fever will assume a quotidian, if forty-eight hours a tertian, if seventy-two hours a quartan type. In the remittent and pernicious forms a small amœba is described, and in malarial cachexia intercellular and free variously shaped organisms are found. In all types of malaria are found atypical organisms, ciliated and crescent-shaped, whose relation to the essential amœba present is not yet understood. Now LAVERAN maintains that the various clinical forms of malaria depend on the same single polymorphous amœba, the various types of fever being the expression of the individual reaction of the person into whose blood the amœba gains entrance. This simple and fascinating theory is opposed by GOLGI, who maintains that the various malarial fevers depend on three varieties of amœbæ, and FILETTI and GRASSI describe five distinct malarial blood parasites. This question is yet unsettled, and so are many others in regard to the etiology of malaria: we do not know anything in regard to the amœbæ outside the body, nor how they enter the body or leave it, but we do know positively that in malaria there are found typical organisms in the blood by means of which we are able to distinguish between this and other fevers. In the tropical and subtropical regions this fact should be utilized and attempts should be made to more definitely define the large number of fevers there occur-

ring by studying them thoroughly in the light of LAVERAN'S discovery. In the United States it is now possible to demonstrate precisely whether such a thing as typho-malarial fever exists or not; routine blood examinations during life and careful anatomical studies after death would soon settle the question permanently. The demonstration of the amœbæ of malaria is not laborious and they should be looked for by the general practitioner everywhere in all obscure cases of fever, so often imperfectly diagnosed, with the assurance that in a fair number of instances positive results will be obtained.

THE PRESENT STATUS OF MEDICAL EDUCATION IN THE UNITED STATES.

Indications point to a pronouncedly higher standard of requirements upon the part of the medical colleges of this country. The year just closed has witnessed a change of the curriculum of fully 25 per cent. of the entire number of colleges. This change has consisted in extending the course of instruction from two to three courses of lectures before conferring the degree of M.D. The number of colleges that will graduate students at the end of their second course of lectures the coming spring are less than ten per cent. of the whole number of schools in the country. With the exception of two schools they are confined to a limited section of the country. Even these schools will in the near future extend their course by an additional year. The experience of these schools raising their standard by requiring four courses of lectures before graduation has been all that their faculties or friends would anticipate. Instead of a falling off in the number of students there is an actual increase in attendance. The University of Michigan, Harvard, University of Pennsylvania, and Chicago Medical Colleges have lost nothing by their change of policy.

Their course has met the approval and admiration of every friend of scientific medicine in the country. Their new curriculum enables them to afford a thorough scientific and practical course of medical instruction upon a par with the very best schools of Europe. The product of their labors will bear fruit in better material. The experience of all colleges that have extended their course of instruction the last few years, has been an increased income from fees of students. Instead of the schools, requiring four courses of lectures before graduation, losing in numbers they will rapidly gain. This situation is due to various causes. The result of the public school system of this republic has been to make the masses of the people at least friends of a thorough education: as a result of the agitation of the subject of higher medical education the attention of the public has been repeatedly directed to our shortcomings and there has resulted in consequence thereof most

efficient medical legislation. The result of this legislation has been most beneficial both to the public and the profession. As the result of several thousand examinations the last few years, they have revealed the character of work being done by the low grade colleges. Fully 25 per cent. of their students have failed to receive a license while the students hailing from the higher grade colleges have very rarely failed. About .985 per cent. of their number being licensed.

There are at the present time fifteen States with practice acts that require an examination of all persons desiring to practice medicine in the respective commonwealths. These States include nearly 50 per cent. of the entire population. From present indications all the States will be equipped against the products of the "Commercial Medical College" in the near future. The result of these changes is quite obvious. The intelligent young man realizes that he can only obtain a scientific medical education in those schools having the facilities to teach and that have a thorough curriculum. In consequence of these changed conditions the high grade school of the future will reap the harvest at the expense of their weaker competitors. The increase of requirements will lessen the number of men entering the profession but not to that extent desirable. The total income of the colleges however, will be increased by extending the requirements to four years. We anticipate many changes for the better the present year. The attention of the profession is being centered on a few of our great metropolitan schools the last few months. The result of their deliberations is awaited with interest. Concert of action upon the part of less than a half dozen of the stronger schools would result in the adoption of the four year requirement by every school in the country in a remarkably brief period of time. In the consideration of this important and vexed problem, to both the public and colleges, it may as well be recognized first as last, that the character of your labors will be revealed in the future, by your students in the examinations before the various State boards. If these examinations reveal a failure of a large percentage of your students before various State boards, your halls will be deserted. This has been the experience of schools in Europe and it will be the experience here. Believing it in your power we appeal to the colleges of the country to solve this burning question in a business-like, intelligent and conscientious manner.

SURGEON GENERAL ILLINOIS STATE NATIONAL GUARD.
—Gov. Altgeld has selected for Surgeon-General of the Illinois National Guards, Dr. N. Senn of this city. This appointment will give general satisfaction to the physicians of the State who are interested in the elevation of the Medical Service of the

National Guards to a high standard of excellence. Doctor Senn has had a large practical experience in this line of work. He is the founder of the National Association of Military Surgeons of the National Guards of the United States and President of that Association since its organization. The Association is composed of the medical officers of the regular Army and the National Guards, and has the official recognition of the General Government. The third annual meeting will be held in this city during the month of August in connection with the Worlds Fair.

DOMESTIC CORRESPONDENCE.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

The following letter has been received from an esteemed correspondent, and as it refers to an item that appeared in the JOURNAL of December 24th, 1892, I copy it for the benefit of any others among your readers who may have been disturbed by the statements quoted.

—INDIANA DEC., 28, 1892.

DR. G. BETTON MASSEY.—*Dear Sir:*—I hope you will not think me presumptuous in asking you how long you have been insane? I refer you to the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. Vol. XIX, No. 26, quoted from the *National Medical Review*. Is Price insane? Or is he suffering from—
Yours very respectfully,
—M.D.

I have thanked the Doctor for his kindly solicitude, and have assured him that I am at least sane enough not to venture to answer the last question in his letter. Since, however, the item quoted from Dr. Price appeared in the JOURNAL of Dec. 24th, page 756, under the head of "Selections" rather than "Medical Humor," it may be well to point out the absurd nature of the reasons alleged in it by Dr. Price as a basis for his opinion that "it is utterly incomprehensible how any sane man can advocate the use of electricity" in pelvic troubles. He asks "Why not apply this all-powerful, this infallible and omnipotent curative effect of electricity to the resolution of abscesses found in the neck of strumous children?" and rightly says that mothers would pay well for such relief for their little ones. I beg to reply that there is no analogy between an abscess such as referred to and a purulent collection within a natural cavity. No one ever claimed to cure such abscesses by electricity, though many of us have had cases of veritable pus tubes get well under it by natural drainage through the uterus after the inflammatory occlusion had been removed by absorption. I am personally aware of three children who have been born after the electrical resolution of pyosalpinx, and in two of these cases several competent surgeons diagnosed double pyosalpinx.

The allusion to "strumous" glands of the neck reminds me though, that they are not so refractory to electricity as Dr. Price supposes, provided treatment is instituted before suppuration. Some recent cases yet unreported have proven to me that they may be reduced in size to a very material extent by being brought at intervals under the influence of the negative pole (with a clay electrode) of powerful galvanic currents.

The immediate effect is to cause so great a determination of blood to the enlarged gland as to temporarily increase its bulk, at the subsidence of which the tumor will generally be found smaller. Since it is now known that these so-called "strumous" glands are in reality tuberculous, a

permanent reduction in their size, which has resulted in some of my cases, may well be accepted as a favorable result. Whether the bacilli are affected themselves or merely their products, is uncertain, but the probabilities are that decrease in size is due to the absorption of the products and irritative consequences of microbic action in this case, as well as in the hyperplastic pelvic disorders now so largely treated by the interpolar action of electric energy. If it were possible for me to disbelieve in germs like Dr. Price I would have greater faith in the resolving power of galvanic currents in these "strumous" glands, for a daily experience begets increasing confidence in our ability to use currents that will stimulate tissue changes to an extent fully equal to clearing up mere glandular infarctions; and even a lymphatic gland should be restored to function if possible, rather than removed from the body.

This excursion of Dr. Price's outside the pelvis is to be commended, for no one can deny that the present views of abdominal surgeons need a healthy comparison with the work being done in less abused portions of the body.

G. BETTON MASSEY.

Wanted.—A Word.

The medical profession in general, and the surgical instrument dealers in particular, are much in need of a word that will properly describe a surgical instrument that has been so constructed that it may be rendered aseptic. Such instruments are usually called aseptic, but as they are septic until rendered *aseptic* by antiseptic methods, it follows that the name as now applied is a misnomer, because an instrument can hardly be both septic and aseptic at the same time. Will some one kindly supply this "long felt want?"
CHARLES TRUAX.

75 and 77 Wabash Ave.

[Aseptable?—EDITOR.]

BOOK REVIEWS.

HYGIENE AND PUBLIC HEALTH. By LOUIS C. PARKES, M.D., D.P.H., London University, etc. Third edition, with seventy-eight illustrations. Philadelphia: Blakiston, Son & Co. 1892. \$2.75.

This is a work of 523 pages replete with invaluable information. In a small space it covers nearly the whole field of sanitary science. While it is intended primarily for students and medical men, every intelligent householder could profitably make the acquaintance of most of its contents. If the general public would do itself the favor to become conversant with the chapters on house drainage, water, heating, lighting, ventilation, smoke prevention, food, beverages, clothing, etc., it could reap benefits that would repay for the time and money invested a thousand fold.

In the prefaces to the first and third editions Dr. Parkes professes to have recorded the most recent advances of bacteriological and etiological investigation, but this edition bears internal evidence that not all the parts that bear directly on these subjects have been rewritten, for the nature of these rapidly developing sciences quickly reveals such neglect. There are discrepancies in the different sections that have to do with bacteriological data that can be accounted for on that hypothesis only, for in some places the reader is conscious of perusing a back number, while in others the facts are brought down to date. On page 68 he says: "Whether the choleraic diarrhoea is due to the presence of a living germ in the water, or to dead and decayed organic matter in solution or suspension, is not yet certain." On page 413 he insists that bacteriological

investigation "does not prove that the microbe is an indispensable antecedent (cause), or even an antecedent of the disease, or indeed that it is anything more than a consequence." He makes no effort to reconcile his position with the fact that a community may drink water from the same source year after year without the incidence of cholera or enteric fever until the characteristic bacilli infect the supply. On page 91 he concludes "that the biological test (of water) is valuable only for the confirmation it gives of the results of chemical analysis, and not because it is capable of throwing any further light on its dangerous or harmless qualities." Page 72: "Cholera epidemics appear to have been rendered practically harmless (in England) by ensuring an abundant supply of pure water." Page 443: "The comma bacillus may be regarded as pathognomonic of the disease (Asiatic cholera); and its presence when detected in the stools may be considered as sufficient to establish the diagnosis, etc." He emphasizes the danger of disseminating such diseases as cholera, typhoid fever and diphtheria through drainage channels and the necessity of preventing the entrance into sewers of the excreta from persons suffering with these maladies.

On the question of quarantine the author agrees with the position taken by Dr. Elmer Lee and denounces it as neither useful nor practicable. It cannot be denied that the experience of England during last summer's epidemic of cholera supports his view, and his recommendations are certainly humane. In this connection it is interesting to observe that the Illinois State Board of Health adopted resolutions at its last meeting precisely in line with Dr. Parkes' teachings at the University College.

Arsenical poisoning from inhaling particles of arsenic and the vapor of arseniuretted hydrogen from wall paper is explained.

The smoke nuisance in London, he concludes, cannot be abated except by the substitution of cheap coal gas for coal for domestic consumption. A lucid explanation of the manner and prevention of deaths from the use of odorless fuel gas is given, and it ought to prove highly interesting to the residents of Hyde Park, the home of the English aristocracy of Chicago.

Epidemic influenza is accorded the important consideration that its crippling and fatal effects demand. The death-rate in England was raised by nearly two per 1,000 by this disease, and the epidemic of 1892 was much more severe than it was in 1890 or 1891.

The book is a credit to the publishers and is deserving of popularity with the profession and the people.

SELECTIONS.

HYDROCHLORIC ACID IN THE STOMACH.—According to Ewald (*Berlin klin. Woch.*) a deficiency of hydrochloric acid in the stomach has, in recent years, been considered as indicating disturbed function and is not diagnostic of any definite organic lesion. During the first stage of digestion the acid present in the stomach is used up in neutralizing the different bases contained in the food. Later, the free hydrochloric acid increases in amount until it reaches from one and a half to two and a half parts in the thousand of gastric contents. The absence of free hydrochloric acid does not necessarily mean that the secreting power of the stomach is entirely lost. A certain amount of digestion can take place by the help of unstable compounds of the acid which are present in partially digested food. In three conditions free hydrochloric acid is absent: gastric carcinoma; chronic catarrh leading to atrophy of the mucous membrane; and

severe nervous depression. Atrophy of the gastric mucous membrane is most common in old persons who have suffered from dyspepsia. The contents of the stomach contain no free hydrochloric acid, no pepsin, and no rennet ferment. Cancer may exist for a long time without being suspected, the symptoms pointing to a severe neurosis. To improve the muscular tone of the stomach, strychnine, belladonna, and physostigmine may be used. Good results may be obtained from exercise and massage, and from internal faradization. To prevent fermentative changes, the contents of the digestive tract should be made as far as possible unsuitable for the growth of micro-organisms. Resorcin, naphthalin, salicylate of bismuth and benzo-naphthol are recommended. The author especially recommends the latter in doses of from two to five grains a day. It is tasteless and non-irritant, and remains unacted upon in the stomach, but is split up in the intestine into naphthol and benzoic acid. —*Boston Medical and Surgical Journal*.

THE EXAMINATIONS FOR THE MEDICAL DEPARTMENT OF THE UNITED STATES ARMY.—The examination of candidates for commissions in the medical department of the army, recently held at the army headquarters in New York, was not, says a writer in *The Tribune*, prolific in its results. Only four of the twenty-two who appeared before the Medical Board succeeded in filling the rigid requirements, professional and physical, for appointment as assistant surgeons. The officials of the Medical Department are gratified for the few successful candidates, considering their high qualifications, but they are also disappointed at the small percentage of the successful ones. On the other hand the applicants who failed in the examinations, and also their friends, feel their disappointment more keenly and complain bitterly about the severity of the examinations. The Surgeon-General's Department, however, prefers to go short-handed rather than reduce the standard of the examination, and soon another examination will be ordered to fill the six vacancies still remaining.—*Medical Record*.

BRIDGEPORT, CONN., prohibits the practice of irregular physicians within its limits. As Connecticut has no law regulating the practice of medicine, this municipal ordinance may stimulate it to the recognition of its duty.

MISCELLANY.

MIDDLETON GOLDSMITH LECTURE.—Dr. William P. Northrup has been invited by the trustees to deliver the above lecture before the New York Pathological Society in April next; subject to be later announced.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from December 24, 1892, to December 30, 1892.

Capt. Louis W. Crampton, Asst. Surgeon U. S. A., leave of absence granted is extended three months.

Capt. Marcus E. Taylor, Asst. Surgeon U. S. A., is granted two months ordinary leave of absence, to take effect upon the expiration of his present sick leave. By direction of the Secretary of War.

First Lieut. Frank T. Meriwether, Asst. Surgeon U. S. A., leave of absence for seven days granted is hereby extended ten days.

First Lieut. Benjamin L. Ten Eyck, Asst. Surgeon U. S. A., is relieved from duty at Ft. Leavenworth, Kan., and will proceed at once to San Antonio, Tex., and report to the commanding General, Dept. of Texas, for duty with the troops now in the field.

First Lieut. James D. Glennan, Asst. Surgeon U. S. A., will upon his arrival at his station (Ft. Sill, Oklahoma Ter.) from leave of absence, proceed immediately to San Antonio, Tex., and report in person to the commanding General, Dept. of Texas, for temporary duty in the field with troops operating on the Mexican border.

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ORIGINAL ARTICLES.

A BIRD'S EYE VIEW OF NEW MEXICO.

Read in the Section of State Medicine at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

BY FRANCIS H. ATKINS, MD.,

OF LAS VEGAS, N. M.

MEMBER NEW MEXICO MEDICAL SOCIETY, AMERICAN CLIMATOLOGICAL ASSOCIATION AND AMERICAN MEDICAL ASSOCIATION.

My doubt lest any audience I might have in Detroit might know more of New Mexico than I myself after a dozen years' residence within its borders was measurably lulled last evening when a member exclaimed on learning my home, "Oh! that is just above Peru."

I am sure the gentleman did not pertain to the Section on State Medicine, but the incident emboldens me in displaying this bird's-eye view of the territory I represent, the land of the undying sun, the purple grape and the plaintive burro.

There being no apparent provision for climatology in the several sections, by the courtesy of the officers of the Section on State Medicine, I am permitted to read here a few notes upon the characteristics of New Mexico and their climatic bearing upon the great problems of the prevention of disease.

Since the Hon. Jacob H. Gallinger of New Hampshire, less than two months ago, introduced a joint resolution in the Senate of the United States providing for a commission to select a suitable site for the establishment of a great national sanatorium in one of the territories for the treatment of pulmonary diseases, and especially as the bulk of his corroborating testimony relates to New Mexico, I feel that a paper bearing on that territory, its merits and demerits, may fairly be ranged under the title of State Medicine.

New Mexico, oldest named of American regions marked by the infrequency of phthisis, has, by reason of its inaccessibility and of its slow social development, been greatly neglected as a field of resort for phthisical and other invalids. Whatever claim Colorado has to your patronage, New Mexico has in equal force, with the added advantage of a lower latitude and hence warmer winters. This has not been justly appreciated, and the superior social features of the Centennial State have given it a position in eastern thought above our Sunshine State not justly merited when the question is one of saving the life of the tuberculous and not of furnishing them luxuries.

So vast is New Mexico that England, Scotland, Wales and Ireland could be placed within its borders, I am told by our nimble arithmetician, while in altitude it varies from 3,800 feet, on the plains of its south and east borders, to lofty mountain ranges over 12,000 feet high. Necessarily, here is variety

to suit a multitude of varying cases. So much misconception exists concerning this wide combination of mountain and plateau that I hasten to briefly mention the leading features of its climate.

The mean annual temperature of Santa Fé at 7,000 feet altitude is 48° and that of Las Vegas at 6,450 feet 51°—the latter corresponding with Peoria and Indianapolis.

That of the plains is considerably higher, being 55° to 60° toward the south.

As to moisture—the dryness of New Mexico is notorious. The annual precipitation in 30 odd years at Fort Union not far from Las Vegas—in the northern part—averaged 18 inches, but at Santa Fé only 15 and at El Paso, just below our southern border, but 12 inches. When it is remembered that one half of this falls in midsummer and but six to eight per cent in winter—and this wholly as snow—it will be seen that invalids here escape the dreaded combination of wet and cold.¹

The figures for percentage of moisture are low, the annual mean for many years at Santa Fé being but 45, the monthly mean not passing above 54 in winter and often falling to 30 (and even 20 at Las Vegas) in spring and early summer.

Our governor when asked to give New Mexico a name of sentiment dubbed it the Sunshine State. The sky seems infinitely high above our heads there as contrasted with that of Detroit or New York, and we bask in the sun's rays to a degree hardly known elsewhere. A Signal Bureau analysis placed El Paso, Tex., and Fort Stanton, New Mexico, in a short preferred list for least average cloudiness, with but 29 and 25 days respectively per annum reported cloudy. In one recent year I noticed Santa Fé accredited with 27 cloudy days, while Detroit had 123 and Chicago 116, while the proportion of days rated clear in New Mexico to days called fair is immensely greater than in the lake cities.

New Mexico is often spoken of as a windy state and visitors carp at us because we do not report our winds. Let me say that the much visited Colorado quite equals us in the annual mileage of wind. Government observers at Santa Fé and Fort Stanton report an annual movement of about 60,000 miles. That of Colorado Springs has been observed as high as 90,000 miles in a year, and especially do this highly favored resort and Denver report winds exceeding in maximum velocity those in New Mexico, a signal advantage to the latter region.

In average velocity Santa Fé wind ranks with the soothing Jacksonville, Fla., as well as in total mileage, while as a matter of fact the whole east slope of the Rocky Mountains is wind swept to about a similar extent—as to annual mileage—the wind movement of New Mexico is actually less than that

¹ The average total precipitation in three winter months at Fort Union for 10 years was 1.69 inches of water, all as snow.

of Detroit and St Paul by one sixth, less than that of Boston and New York by one fourth. It is the dust incident to the dryness (as in the other southwestern states) that has given New Mexico a bad name by accentuating its winds. But this is chiefly annoying in the streets of our towns and here is being combatted by sprinkling as is done in the towns of California and Colorado.

A mean annual temperature of 48 to 51 degrees should sufficiently assure eastern physicians and their patients that the winters in the higher altitudes, as at Santa Fé and Las Vegas, cannot pass without occasional zero temperatures, on one or two days only in some winters, in others for two or three weeks, in January the air being as still, clear and crisp as that of Minnesota (but dryer), and the public health rising to a maximum. I dwell on these facts because still invalids stream into New Mexico expecting, by the delusive suggestions of its last name, to find a tropical climate with the fruits and flowers of the same. Even in the southern sections, at lowest altitudes, it is far from tropical.

We offer simply a very dry air, a vast amount of sunshine, a breeze that never is warped into cyclonic effects, altitudes from 3,000 to 7,000 feet with towns providing constantly improving shelter and comforts for invalid visitors, or even 9,000 feet, with occasional dwellings, for more tolerant cases. Necessarily the air is pure, for except to a small extent in the Rio Grande valley, there is no malaria, and water is too scarce to waste it in making swamps.

Visiting doctors wonder how the New Mexican doctors live, so meagre is the practice afforded, so healthful the climate. The Las Vegas doctor often has long spells of enforced idleness when he cultivates philanthropy and the softer virtues. During the past year many months saw our physicians but lightly employed, while our well equipped druggists were subsisting by selling perfumery and cigars. We have no regular seasonal diseases, as abdominal diseases in summer, malarial in autumn or pulmonary in winter—the light pharyngitis and bronchitis of the country is naturally more prevalent in December and January. Pleurisy is extremely rare; croupous pneumonia not at all common, catarrhal pneumonia but little more so. Acute articular rheumatism is uncommon. The renal degenerations are practically unknown. In nineteen years on the plains and mountain borders, I have not seen one genuine case of Bright's disease, and but a single case where an acute nephritis perhaps of zymotic origin—lingered and was fatal. If kidney degenerations can be foreseen or if they tend to prevail in certain families, certainly New Mexico is the place for resort and residence in such instances.

Indeed, the only really prevalent disorder is the lithemia or concealed gouty diathesis, of which there is a curious abundance—at least in higher altitudes—but proper hygiene prevents or cures this.

The three inroads of influenza, though visiting us, made no deeper impression than our simplest winter visitation of sore throat. In the first no consumptives in Las Vegas were touched by it; in the second a few visiting invalids felt its force but recovered without apparent detriment. In fact no American death in any way attributable to the influenza has occurred in my part of New Mexico.

The climate of New Mexico is especially adapted to the restoration of phthisical cases in the earlier

stages—for instance, Mrs. A. of Chicago, age 23 years, continuously coughing for six months, sputa examined by a well known specialist and contained bacilli, history of increasing weakness. Ten weeks after reaching Las Vegas, New Mexico, all cough had ceased, no pus was expectorated, and she could run up long flights of stairs rapidly. Mrs. B. came to same place 14 years ago for cough, hemorrhages and emaciation. Within three years all symptoms disappeared, she married, bore healthy children, and has lived with impunity the past three years in New England, a robust woman. These are sample cases, hardly scientifically reported, of which our territory can furnish many.

Cases with cavity, if not progressing too rapidly, on arrival will mend, but in the name of all honest Rocky Mountain doctors and tender hearted lodging house keepers let me beg that cases with advanced destruction of the lungs, high temperature and persistently rapid pulse be not sent to this country—or, at least, not to the higher localities.

On the other extreme there is no better climate in which persons who are merely weak, or who are lacking robust development, especially such as are of tuberculous stock, or in markedly delicate families, may secure safety from phthisis or develop more robust bodies. Such families escape in New Mexico the sickness and premature death so likely to seize them in the damper states.

Scrutiny of the annual reports of a vast benevolent order reveals a remarkably lower death rate and sick list for this territory than for a string of central and eastern states, while the time lost per member by sickness was singularly less than in those states—attesting the great salubrity of the climate.

The death rate of the resident American population, which I have studied a number of years, is low, ranging in Las Vegas from 12 to 6 per thousand per annum. As illuminating the unpleasant side of sending moribund consumptives to New Mexico, our gross death rate was increased from 22 to 56 per cent each year (in a series of years) by the deaths of these forlorn visitors. Moderate cardiac valvular disease need not bar a visitor, while occasionally extreme valvular obstruction may exist for years without detriment to health and comfort.

The visiting consumptives show a very minimum of the ordinary incidents of phthisis. Hamoptysis is rare; I have prescribed for night sweats but twice in seven years; cough and expectoration generally diminish.

As to advancement in medical legislation, New Mexico has a Medical Examining Board under an old and clumsy statute. Efforts of our medical society to secure its remodelling on the best in other states have been baffled by politicians in our own profession. Similar fate befell bills concerning expert testimony and privileged witnesses among medical men. Formerly small-pox corpses were carried through the streets on boards by daylight for public burial, and not a few such were laid by the native faithful under the floors of the Catholic churches. Modern legislation has abolished all this. An excellent school law, now one year in successful operation, has quite taken the fancy of the natives and bids fair to be the first entering wedge for sanitary ideas. A recent curious statute forbids graveyards to lie nearer than 50 feet to any river; the former limit was 25 feet!

There is no territorial board of health, but local health officers do efficient service in a few towns. Hospitals exist in several towns. Our medical society constantly agitates sanitary subjects. The fatalism of the Mexicans and their utter lack of appreciation of the sanctity of human life (when disease is in question) are the chief hindrances to sanitary reform. In a few weeks it will be my privilege to lecture before a summer normal school, chiefly of native teachers, on the prevention of disease. But from the start I shall be handicapped, for my prospective hearers do not dread or attempt to prevent the contagious diseases, and, when God wills it, all their little brothers may die and they will not complain.

Finally, we denizens of New Mexico marvel that eastern people do not make our higher altitudes a summer resort. All who have lived here unite in pronouncing the summers the nearest to ideally perfect that they have ever seen. The young people complain that the evenings are too cool to let them sit freely on the piazzas: the nights are always cool; the heat of the day—rarely touching 90° —is so tempered by the dryness as not to be oppressive; sun-strokes, like the cyclone, malaria, the flea, the mosquito, are unknown. High temperatures with high percentage of humidity are very rarely seen, and then but for an hour in the morning.

ARRESTS OF DEVELOPMENT AND DECALCIFICATION OF THE ENAMEL AND DENTINE.

Read in the Section of Oral and Dental Surgery, at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

BY EUGENE S. TALBOT, M.D.,
OF CHICAGO.

I wish to call your attention to a few observations which I have made in regard to a want of calcification and decalcification of the enamel and dentine. The conclusions arrived at are the result of the study of three cases which have presented themselves to me for treatment.

The first case is that of Miss C., 24 years of age. Her jaws have gradually come closer together, owing to a wearing away of the teeth. The front teeth have exceeded the back ones so that considerable space was noticed between her front teeth. The articulation was so poor that she was unable to chew her food and mastication was imperfectly performed with the vault of her mouth and tongue. Owing to the constant use of her tongue for purpose of mastication, hypertrophy had taken place to such an extent that her speech had become impaired. She was a constant sufferer from indigestion due to improper mastication, which was readily detected by the thick white coating on her tongue. Upon examination of her teeth, I found them of a dark yellowish color, containing grooves and pits, indicating arrest of development due to some of the eruptive fevers early in life. The bicusps were the only teeth that had any semblance of normal contour, although the second molars were fairly well developed. None however, were smooth like ordinary teeth. The roots of the second molars upon the right side of the jaw still remained, while the first molars had been extracted. The anterior teeth, both upper and lower, were worn away from one-third to one-half the length of their crowns. I judge that this was not due to friction by mechanical attrition for two reasons: first, the present teeth were very rough upon their cutting surfaces. If it had been due to attrition they would have been smooth; 2, the roots of the second molars were smooth and polished. They did not occlude with the upper molars. Hence, abrasion by attrition is wholly out of the question. In order to improve the appearance of the face and make the teeth

serviceable for mastication, it was necessary to crown all the teeth except the six lower anterior ones. Upon scratching and shaving the crowns and roots, the enamel and dentine could be shaved off like horn or old cheese. The inclination of the crowns and roots of the upper anterior teeth when the jaws were in their proper position was such that the anterior and labial surface had to be shaved and ground down to such an extent that the pulp chamber was ground nearly to the cervical margin, without exposing the pulp, thus showing that the pulps had receded entirely from the crowns. This was also the case with the molars; no canals could be found in the roots. A sister of the patient had also similar teeth; she died at the age of five, of membranous croup. Her mother said that she had tried to have her children eat oatmeal for the purpose of improving the tooth structure, thus showing that she was not unmindful of the bad condition of the children's teeth. The father's teeth were in a similar condition although not quite so bad. The grandfather and grandmother on her father's side were both of a nervous temperament. Tartar accumulated early upon the teeth of all. The teeth of these girls erupted at an earlier age than usual.

Case 2, is that of a girl, aged 11 years, who was sent to me by her physician for an opinion as to the cause of her trouble and also for the purpose of treating her mouth and teeth. I found her an exceedingly nervous child, she would cry upon the slightest provocation. Her bones were small in diameter and she was rather short for her age. Upon examining her mouth I found the teeth covered with tartar of a bright yellow color. The tartar formed a continuous band extending from the second molar of one side to the second molar of the opposite side—this was upon both jaws. To such an extent had this accumulation taken place that it was impossible to locate the individual teeth until the tartar was removed. This was very difficult to accomplish because the slightest grating of the instrument upon the teeth would produce such a sensation upon her nervous system that she would nearly go into spasms. I could operate only about five minutes at a time. Upon the removal of the tartar, I found that the crowns, including the enamel and dentine were as soft and cut like horn. The tartar accumulates upon her teeth to such an extent that in two week's time, they will be completely covered. The child has occasionally nervous spells at which times all her teeth will ache. She suffered the most excruciating pain for about ten minutes after the impressions were taken for the models which are here presented. No cavities were found in her teeth. The child takes plenty of nourishment but the phosphates and carbonates are not assimilated, which is also indicated by the small bones and nervous condition. Believing from the large amount of tartar which is excreted by the salivary glands that an excessive amount must also be excreted by the kidneys, I submitted a quantity of urine to Prof. Walter Haines of Rush Medical College for an examination. The following is his report: "From 100 cc. I obtain 0.0775 grams of the calcium phosphate ($\text{Ca}_2\text{P}_2\text{O}_7$), from which I calculate that the entire amount of calcium phosphate eliminated by the urine in 24 hours is 0.9166 grams. All the calcium in the urine existed as phosphate and none as carbonate. Gautier gives the average amount of calcium phosphate in the urine of an adult for 24 hours as 0.40 grams."

When we take into consideration, the age of this patient, and the fact that children are not in the habit of excreting the phosphates as grown people are, it will be found that this child is excreting through the kidneys four times as much as normal individuals at 30 years of age. None of the carbonates were present which shows that a large drainage was taking place from the system.

Case 3, is that of a gentleman, a lawyer, 42 years of age. He complained of sensitiveness of his teeth whenever food was taken into his mouth, he suffered no pain at other times. I found that all the teeth were arrested in their development, with pits and groves running across the anterior teeth and clear around the bicusps and first molars, and above and below these grooves, constrictions and irregularities of structure occurred, extending to and including the grinding surfaces. These conditions were the result of arrest of development due to the exanthemata—he informed me that he had had all the children's diseases. In all these teeth the enamel was imperfect and the cavities had been constantly excavated and filled. Upon examining these sensitive places in the molars, which were deep, I found that the

structure cut like horn or old cheese-rind, and extended into the dentine an eighth of an inch below the soft decay. The color was dark brown. We frequently find these spots of a darker hue in the molars, but still soft when cut with the excavator. No enamel or rather hard organized enamel is present. Believing from the depth of the cavity and the character of the pain that the pulp was exposed, I cut into floor of the cavity with an excavator and finally with the bur until I was afraid of going through into the alveolar process without finding the canals. The tooth was afterwards filled with cement and has remained quiet for four months. The secretion of the mouth is alkaline.

Case 4, is one which comes under the care of Dr. W. C. Barrett of Buffalo, N. Y., and was presented before the Illinois State Dental Society in 1882. The following letter accompanied the models. "The casts were made from impressions of the dentition of a young man, a resident of this city, of otherwise full development, in excellent general health, with no marks of inherited disease, and who comes of a sturdy race, the family occupying high social and business positions. Nearly two years elapsed between the periods of taking the lower and upper impressions, which accounts for an inexact occlusion.

When I first saw him, the possessor of this denture was about 18 years of age. The maxilla, as might be seen in the casts, were well developed, and there was nothing approaching deformity, as the mouth presented a full and natural appearance although of course no teeth were visible. I counseled him to refrain from any meddling, as his condition could not, in my opinion, be bettered by the dentist. At that age young men are very solicitous about their appearance, and, annoyed I suppose at his peculiarity he applied to another practitioner who gave a different opinion, removed all the upper roots, and inserted a rubber denture which the young man is now wearing. I subsequently extracted some of the father's teeth and have made a microscopical examination of them.

It will be seen that there are absolutely no crowns to the teeth, their summits being for the most part upon a level with the gum and this was also the case with the deciduous dentition. The only vestige of enamel was some minute nodules or kind of bead-work around the cervical edges of two or three of the molars. The gum had a dense, glistening appearance, hard, unyielding, with apparently less than normal vascularity, and seemed admirably adapted to assist in mastication, reminding one of the maxillary appearance presented by the *gramivora* that have incisors upon only one jaw. Of course there was nothing like a pulp chamber, but the roots of the teeth have nerve canals, which, however, are obliterated at the cervix. The exposed dentine, before extraction of the teeth, seemed very dense and hard, and when tried with an excavator was about as sensitive as ordinary enamel. The color of the exposed ends of the teeth was of a rich, dark amber hue, approaching mahogany, and they were smooth and polished by attrition.

This peculiarity is not the result of disease, nor is there anything simulating the appearance of the atrophied crown which is sometimes the mark of arrested development, due to some functional derangement; it seems the result of hereditary transmission. The father had precisely the same dentition, though the son is the only one among several children, who has inherited this peculiarity. The father was also the only one in a large family who possessed this dentition. Beyond this I have no certain data, but I am informed that the mark has been persistent in the family as far back as they have any knowledge, although it has seldom appeared in more than one member at a time, some generations escaping entirely, while it cropped out occasionally in a collateral branch without being transmitted to descendants at all. In the direct line of descent it has, as well as I can determine, usually appeared in at least one mem-

ber of the family, and that without material modifications. The young man of whose jaws these casts are fac similes, may then reasonably be expected to transmit his denture to one out of a number of possible children, while the others will escape. His brothers and sisters may perhaps have children among whom will be found this lack of development, but the peculiarity will probably end there in their cases, while it is indefinitely continued in the direct line of descent.

When the father first presented himself to me, he had but two or three of these incomplete teeth left. These were worn down to mere points, and he had for years done his mastication upon the unprotected gum. The alveolus was so much absorbed that artificial substitutes had become a necessity and under my directions he was supplied with an entire new set. The roots, or the remainder of them which I removed, were of a dark mahogany color, due to staining of the dentine, and the nerve canal was entirely obliterated. They had once doubtless been of nearly the normal size, as are those of the son, but had been worn down to the point by mastication, having been gradually raised in their sockets to meet the demands of nature.

I made microscopical sections of some of the son's teeth and mounted them for examination. At the cervix of the teeth—the surface presented for mastication—very few marks of the dentinal tubules remained, they seeming to have been obliterated by an infiltration or deposition of calcareous dentinal matter. As I neared the apex of the roots the sections presented a more perfect dentinal arrangement, and the tubules more of the usual appearance though the whole structure of the tooth was loose and showed numbers of minute chambers, some of them apparently communicating by what appeared to be abnormally large dentinal tubules. The nerve canal, entirely obliterated upon the grinding surface, (though from the direction and arrangement of the few tubules visible it had once existed) farther towards the apex of the root made its appearance and was of nearly normal size. The ends of the roots were well formed, and the apical foramen had the appearance of fully developed and well grown teeth. The cementum was much less in proportion than is usual, the dentine at most being invested with but a very thin layer, but what there was, presented no unusual appearance. The enamel which was found in minute nodules at the cervix of two of the teeth, was extraordinary in appearance. It did not present the usual relation to the dentine, and at the junction of the two there was not the frequent reaching over of some of the tubules. The enamel rods had not the usual regular appearance, but the substance of the enamel seemed twisted and contorted. It existed in minute aggregations, and seemed to have little of the usual relations with dentine. The most of the teeth had no enamel whatever. I can do little by way of accounting for this abnormal dentition. The entire absence of enamel in most of the teeth must have been due to a lack of enamel organ, or to its functional inactivity. The teeth erupted about the usual period, though perhaps a little later than usual. They have never shown any signs of caries, those of the father wearing out without decay, and those of the son being perfectly sound and quite exempt from disease. The case has been one of interest to me, and I should be glad to know if any other dentist has met with a like peculiarity."

Such conditions are frequently observed in connection with one or two or even three and four teeth. I can recall a number of cases where the lower central and the lateral incisors of both sets are in the same condition, while all the other teeth are normal. I can also recall a case where the bicuspid upon both sides are in the same condition and the other teeth are normal; and also other cases where the first molars upon both sides are in the same condition and also the roots of the second lower right molar, although I am not quite certain of this; the other teeth are normal. I have frequently seen and you have all observed the first permanent molars in that soft condition, contracted at different points, presenting holes and grooves which run in all directions. The decay extends deeply and is of a dark brown color resembling spunk or the decay of the heart of a tree; the tooth is exceedingly sensitive to touch and painful when food of different qualities come in contact with it. The secretions of the mouth are usually perverted, and when these teeth are excavated, the softness of the enamel and dentine is readily noticed. The pulp recedes frequently, obliterating the pulp chamber.

The roots of the case illustrated by Dr. Barrett, seem to be covered at the cervical margin with dentine which would also indicate that the pulp had also receded. I have observed this in the roots of molars, bicuspid and incisors when in a similar condition.

When this condition takes place in old people the enamel and dentine become exceedingly hard, and no sensation is experienced when the tooth is excavated. You will therefore observe that while the recession of the pulp is precisely the same in both cases the results are directly opposite. We have all observed teeth of a dark color, and so worn down that occlusion is impossible, while the teeth anterior and posterior to them, are in a healthy condition—this is frequently the case with the first permanent molar.

Their surfaces are smooth and polished. The color of the crowns of these teeth are not unlike that of the roots and teeth already illustrated in the cases presented.

I should class under the head of abrasion and erosion cases where one, two or even all the teeth are affected and where the color of the enamel and dentine is normal. Many theories have been advanced of the etiology of abrasion and erosion but I think that all these cases can to a certain extent be classed under the same condition, namely, primarily a want of calcification and a decalcification of the enamel and dentine. We frequently find that the first permanent molar and sometimes the second and third are worn away, and all the other teeth are normal. These mouths sometimes present strange conditions. First, decay is rarely present. Dr. Barrett very aptly says in his case, "That the teeth showed no signs of decay, those of the father wearing out without decay. The secretion of the mouth is most always alkaline and quantities of tartar are usually present. In ordinary mouths when the secretions are acid decay would take place because of the recession of the pulps—usually tartar in large quantities is present. These conditions render decay almost impossible. These teeth are always soft, cut readily under the bur and the pulps recede so that in many cases the pulp chamber is entirely filled. The anterior teeth upon the upper and lower jaw will wear away frequent-

ly, leaving a space of from one-fourth to three-fourths of an inch between them, while the teeth posterior to them occlude. The enamel although nearly twice as dense as the dentine wears away as readily as the dentine. What conclusion can we draw from these facts? We have already shown that in some cases the phosphates and carbonates are not assimilated. This to my mind is the cause of erosion and abrasion. We instinctively make the remark to a patient that it is better for teeth to erupt late because the tooth structure will be of a better quality. I have frequently observed this in irregularities of the teeth—when these teeth are slow in coming through, they are larger, more dense in structure and set more deeply in the jaw. The reverse is the case when they erupt early. The structure of the tooth is not well nourished. This condition can also occur in utero, the mother not giving sufficient nourishment to her child. Dr. Marshall in his paper entitled "The Oral Cavity of Pregnant Women" read at Newport, 1889, alludes to "certain cases of pregnancy in which the nutrition was impaired and as a result the bones and dentine became abnormally soft and that thus this softening of the dentine predisposes the teeth to decay." The child after birth may be poorly nourished and thus the bone, teeth as well as other tissues of the body suffer as a result. You are all familiar with the fact that the teeth suffer from a want of nourishment, and arrest of development will take place when the child is afflicted with the constitutional diseases. These teeth are soft and when the enamel is lost decay attacks them. After the teeth are formed they frequently decalcify. This is well illustrated in the case of pregnant women—the teeth seem to lose their vitality and decay early. If the teeth disintegrate under these conditions why will they not in constitutional diseases, as consumption, typhoid fever, etc? We know that this is the case so far as decay is concerned. I have called your attention to the fact that in some cases especially in children between 12 and 20 the phosphates and carbonates do not assimilate and hence there is a softening of the teeth and bones. We find that these substances which are taken in the system in the form of food for the nourishment of the body are deposited, unorganized upon the teeth, being excreted by the salivary glands. These substances are also excreted by the kidneys. The brain is not properly nourished, and as a result the child becomes very nervous, or again the child may possess a very active brain and the phosphates are entirely used up in its nourishment, the bones and teeth suffering in consequence. I have plenty of material that could be brought forward to sustain this theory, but the paper is now so long that I will not weary you with any further data. I have tried to find some mode of treatment but at the present time have been unable to lay down any fixed rule. Plenty of outdoor exercise and good nutritious food are about all the measures that can be suggested. It is possible that if the child lives long enough he may outgrow this want of assimilation.

Discussion.

Dr. W. C. Barrett: We should try to determine the reason of the want of enamel in these cases. In one case there was a total lack of crowns to the teeth, and no enamel at all, except some little nodules at the gingival portion. In my report, quoted by Dr. Talbot, I stated that the dental tubules were not entirely normal. I believe this was because there were no crowns to protect them, and being normal at first, the modifications were caused by the want of the pro-

tection of the enamel. The roots were perfect, and mastication was performed upon the tops of the roots. Of course there was a cause for this absence of enamel. Could it be an entire failure of the enamel-membrane derived from the epiblast while the mesoblast performed its office correctly? The deciduous teeth of these patients had some kind of crowns. I do not know and could not learn just how near to normal they were.

We should take up and make a study of the pits and cracks often found in enamel. No one has as yet demonstrated the reason for them. They have been ascribed to the diseases of childhood, but if that is true why do they not occur all over the enamel? The enamel is all formed at one time, and these pits and marks should be in all parts of it. We all know that this is not generally the case, and we cannot prove that they are connected with the eruptive diseases of childhood. If every child who had eruptive diseases had these defects in its teeth, then it might prove that they were the cause, but it is not so.

Dr. Gish reported a case of a child, seven years old, whose temporary teeth were in a condition very much resembling the teeth described by Drs. Talbot and Barrett, only that they had had crowns. When he first saw the case, every one of the deciduous teeth was worn off even with the gums, and the roots were of a polished mahogany-brown appearance. He watched the case with a great deal of interest. He had to remove the roots of the premolars, as they were so firm that the permanent teeth could not erupt. When the permanent teeth did come in, they were quite perfect. What factor could cause such a condition in the deciduous teeth which still would not affect the permanent set?

Dr. Fletcher asked Dr. Barrett how many generations of the family—the subject of his report—he had positive knowledge of.

Dr. Barrett said he had positive knowledge only of the father and son. As for the preceding generations, he knew nothing only that it was an accepted tradition in the family that there had for a long time been one or more with short teeth in each generation.

Dr. Allport spoke of three girls in one family, who were patients of his, whose teeth were quite short and of a light slate color; in two of the girls the back teeth only were affected, in the third even the front teeth were of the same color. He learned that the grandfather had teeth of the same character, though the boys in the same family had perfectly natural and well-formed teeth. The peculiarity was evidently hereditary.

Dr. Talbot said, in closing the discussion, he wished to call the attention of the section to the prevalence of cases of a want of assimilation of the phosphates and carbonates in the food, and the consequent lack of these elements in the teeth, bone, and brain. We will find a child, say of twelve or fourteen years,—likely a girl,—very nervous; eats everything, beefsteak, milk, etc., yet is so nervous that she cannot control herself,—perhaps cannot hold her urine. She will be a bright child, with small bones. Upon examination her teeth will be found full of tartar, and her urine loaded with carbonates and phosphates. This material, so badly needed to supply the bones, teeth, and nervous system, is not assimilated, but is excreted by the salivary glands and in the urine.

Similar conditions are found in pregnancy; the teeth decay more rapidly than they would otherwise, and if a limb is broken the bones cannot be gotten to unite. These cases show that the phosphates and carbonates are appropriated by the fetus. We know, too, that in many diseases the teeth do not receive sufficient nourishment. The teeth show erosions arising from the constitutional condition which produces softening, and the attrition of the food and the adjacent parts wears the teeth away. Dr. Truman says that in erosion the structure of the teeth is harder than usual, but I think it is softer.

We all have these patients, but none of us know how to treat them successfully. We are advised to take the child from school, keep her out of doors, on a farm, with horseback or bicycle riding. We will try all these and many other measures, but with little prospects of success. The probability is that such a child will die of consumption within a few years.

Another condition of the system which affects the teeth is gout. A gouty patient will almost invariably, if not quite show a softening and erosion of the teeth.

Dr. Fletcher said he had a case, a patient about 45 or 50 years old, whose incisors were entirely denuded of enamel on the labial side. The appearance was not as if it had dissolved away, but rather as if it had split off, as the edges were distinct.

Dr. Clifford asked if there was any peculiar diathesis in this case.

Dr. Fletcher said he did not know of any.

Dr. Barrett reported a case somewhat similar, with the enamel all gone from the labial surface, leaving it smooth. The teeth came to a sharp edge and crumbled away. He did not know what to do with them, unless he put crowns on them. The enamel on the lingual surface was intact. They were just the reverse of the teeth of rodentia.

On motion, the subject was passed, and Dr. J. L. Gish read a paper on "The Diseases of the Gums."

Dr. Gish's paper included a classification of the various pathological disturbances of nutrition as they are expressed in the soft tissues of the mouth. He described clearly and fully the several types of inflammation, from simple acute to chronic suppurative inflammation, as well as the cellular changes expressed as morbid growths. The pathological processes, as well as the clinical appearances in their different phases, were fully set forth, and the paper was a fair résumé of present knowledge in this department of pathology.

Its great length, and our lack of available space, coupled with the fact that we have recently presented our readers with similar matter somewhat *in extenso*, precludes a fuller abstract.

Dr. Fletcher related an experiment which he had made to show the influence of the faradic current in the circulation. He isolated the mesentery of a frog, and under the microscope watched the circulation until stasis had set in in a few of the vessels; then, by turning on the faradic current, he cleared up the whole zone. The shock stirred up the white blood-corpuscles and started up the circulation. He had found the use of the current in diseases of the gums very satisfactory, as described in the paper.

Dr. Curtis said the essayist had ably described the pathological conditions of diseased gums, and he regretted that the treatment had not been described more fully. He believed electricity was a great remedy for these diseases, and as we get to understand the use of it better, we will be better able to treat them.

Dr. Marshall, said, in regard to the use of the electrical current, if the positive pole is placed over a location where hyperemia exists, and the negative pole over the base of the brain, the hyperemia will be decreased. If the poles are reversed, the hyperemia will be increased. His treatment had been mostly in cases of hyperemia of the pulp. When the tooth does not positively pain the patient, but feels as if toothache were imminent, by applying the current and repeating for a day or two the condition will be passed, and the necessity for further treatment averted.

THE GENERAL AND THE LOCAL IN DENTAL PATHOLOGY.

Read in the Section of Oral and Dental Surgery, at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June, 1902.

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The whole field of pathology is divisible into the general and the local; and the opinions of pathologists have fluctuated many times in assigning the controlling power to the one or the other.

Ignorant minds necessarily look at the seat of pain or other disturbance as containing the disease. It was considered a great scientific advance when disease was pronounced an affection of "the humors," meaning all the liquids of the body, and therefore conceived as general with local manifestations. In our time the cellular pathology of Virchow has given a strong impulse again toward the more local conception, and bacteriology seemed for awhile about to convert all pathology into the local action of microbes. But the opinion grows that it is not so much the bacteria as their ptomaines, diffused by the hæmatic and lymphatic circulations, which cause disease; and this may bring us back again to the humoral theories, with the great advantage that we have discovered the *materies morbi*.

Dental pathology is so recent that it can hardly be said to have shared all these fluctuations; but it has room enough for them all, and its short history shows now the general and now the local view predominant.

The earliest modern dentists were first of all physicians, several of them among the great lights of medicine, and they naturally viewed all affections of the teeth not of mechanical origin, as symptomatic of general disorder. But when dental operations had been invented the processes were so obviously local both in causes and in results, that they fell speedily into the hands of men who were merely skilled mechanics, and the general relations of the art were almost neglected or treated in the most empirical manner.

A great change resulted from the labors of Dr. Harris and the founding of the Baltimore College of Dentistry, which was the birth of dental education. For many years the constant effort of educated dentists was to remove the stigma of a mechanical art and to assert their affiliation with medical men. This effort naturally brought forward again whatever could be alleged as connecting the teeth with the general system, whether as exerting or suffering pathological influences. And there was a time, midway in this struggle, when cautious men were inclined to think that the manual skill and the practical usefulness of a dentist were pretty certainly in inverse ratio to his scientific knowledge of medicine. Indeed, a contrast used to be drawn between European and American dentists along this line; the Europeans being confessed the more scientific, but the Americans far more practical.

Such work as Harris', however, could not fail, and by slow degrees dentistry has come to its own. We no longer need to ransack the records of medicine for rare and doubtful cases which may show the reciprocal relation of teeth and nerve-centres, in order to prove that we deal with vital organs intimately associated with the general welfare of the system. Every division of the dental field is now known to demonstrate this abundantly; and a suggestive outline of the familiar facts is all we shall need here.

It is not worth while to dwell on mere curiosities. Almost every organ of the body has at some time been reported as having pathological relations with the teeth; but it may be doubted whether all these cases could have stood the test of modern research. At any rate the very rare ones can never be anticipated and seldom recognized, and may well be left out of our view.

Neither need we take up the sequels of inflammatory action produced by diseased teeth in the adjacent tissues; the periosteal tumor which sometimes long precedes the breaking of a chronic alveolar abscess; burrowing fistulae which occasionally open far from the tooth; alveolar necrosis; affections of the antrum, etc. There is no mystery about these results and there can be no advantage in going over them here.

The remote relations of the teeth which still need study are effected either by the nerves, (whether the teeth are on the causative or the resultant side), or by general cachexias not well understood.

There can be no doubt that the constitution and the structure of the teeth partake of the general conditions of the system during the formative stage.

This relation is a little obscured by the fact that the internal condition of teeth does not so readily fluctuate with changes of the general health as do most other tissues; because the process of nutrition and interstitial change is exceedingly slow. But during the formation of the teeth they are as easily influenced as other organs, and their subsequent condition, especially the difference often found in the same mouth between teeth of different periods, may frequently be accounted for by inquiring into the health of the child at the time when each order of teeth was forming.

A relation so easily established authorizes us to believe that a similar cause may some day be made out for more mysterious deficiencies of dental constitution, and pathological conditions be thus explained from within for which no study of their surroundings shows any cause.

But the history of teeth is not wholly determined by the circumstances of their formation. Many observations have proved that a slow circulation pervades the dentine, maintaining a correspondingly slow process of renewal and interstitial growth. This process certainly produces at times increased density, and the presumption almost amounts to certainty that it sometimes retrogrades and causes deterioration. The evidence of this is not easy to disentangle, but it grows in distinctness. It has long been observed that the teeth rapidly decay during or immediately after some attacks of prostrating sickness and some pregnancies. The cause usually assigned has been a pathological acidity of the buccal fluids; but it is now established by researches in bacteriology, that except at the very beginning caries depends very little on external conditions; and therefore, if the long recognized effects of sickness and pregnancy are facts, some cause must exist which acts within the tooth. And such a cause does exist which is exactly in the line of our present study. Experiments made by the writer some years ago, but never published, showed that when decay occurs in fairly well-formed teeth, a zone of dentine immediately surrounding the cavity of decay has a higher specific gravity and yields more ash than a similar section from a sound side of the same tooth. This necessarily means a new deposit of lime salts apparently resulting from the irritation of decay. Now such a deposit in itself is of course a local affair, but it implies a heightening of vital activity which must be traced back to nerve-centres. And it may well be assumed that besides the increase of density, the increased vitality of the dentine hinders, *pro tanto*, the ravages of the bacteria. If then this be the normal check upon decay, anything which so cripples the nerve-centres as to prevent this opposition, leaves the tooth defenseless to its enemies, and destruction is far more rapid. Now to this failure of normal inhibition rather than to any local cause, the quick decay accompanying disease and pregnancy must be ascribed.

Another field of quick decay reinforces this conclusion. In advanced life, when the general strength is impaired, teeth which have borne the strain of a lifetime are seen to give way suddenly to decay, so that in a few months there will be little left of the crown except the enamel, the dentine being decalcified in mass. Of course something must have happened to make this possible and not only general reasoning but the fact that these teeth are remarka-

bly insensible under the excavator, indicates that the nerves which supply them have almost ceased to work.

From all these considerations it seems fair to conclude that the decay of teeth is far from being a purely local matter, and is greatly determined by the nerve-centres from which the teeth are supplied.

Another branch of dental pathology which was long treated as merely local, has come to appear still more dependent on general conditions—the whole group of pericemental affections loosely classed as Riggs's disease. Once every condition, from a slight marginal congestion to the suppurative inflammation of the whole membrane was called the result of "tartar;" and under this name were included both salivary calculus and the scales and stars of pericemental exudate which occur at all parts of an affected root. With this view of the cause it could not be doubted that some kind of local treatment would cure the disease; and the remedies warranted never to fail have been countless.

The fact is, however, that extreme deposits of salivary calculus, even masses as large as the tooth, are frequently found to have caused no worse trouble than a superficial inflammation with some absorption of the gum; while deep-seated lesions of the most fatal kind occur in mouths which have been kept carefully clean. There is some cause farther back. Of course bacteria are invoked to explain it all, and they doubtless play a large and aggravating part. But they cannot explain why one mouth welcomes and another rejects them under the same visible conditions.

This writing has been interrupted to see a case which perfectly illustrates. Two molars have been driven apart by the blow of a wedge-shaped antagonist. At every meal food packs tightly against the intervening gum, till it has receded far beyond the original level of the alveolus, forming a deep pocket between the teeth. Could any conditions be more inviting to bacteria—the deep, protected nidus, the ever renewed supply of food never quite removed, the air and heat and moisture of the mouth? And yet neither tooth shows the least sign of pericemental disease, and the depressed surface of the interdental gum is pale and healthy as the hard palate. Such cases, not very infrequent, prove that the whole is not stated when we have spoken of bacteria. The opinion of dentists is therefore inclining towards one or another constitutional state as the predisposing and sustaining cause of pericemental trouble. We do not yet know much about it; perhaps gout or rheumatism is at the bottom of it; perhaps the condition, not well understood, which promotes nasal catarrh.

To these two conspicuous topics might be added odontalgia; but of this so much is superficially known and so little profoundly, that it is hardly profitable for discussion. It is enough to say that the pains of the teeth are as frequently unaccountable as any others. The great majority, it is true, are due to local irritation traceable if sufficient diligence is used. But the commonest perplexity of dental practice is that one may do so much in one month without painful sequels, while so small a portion of similar treatment in the next month will prove disastrous.

Nor has as much been anywhere said as might be of fugitive and unaccountable pains in the teeth. It

often happens that the most searching examination discovers no local cause and that nothing in the subsequent history throws any light on the matter. Of course such phenomena are to be referred to reflex-action. The fifth pair present so many points of possible irritation, and this is known to pass so readily from one branch to another, that it would be strange indeed if the teeth did not often complain of disturbances quite remote from them.

Irregularities of position constitute another topic which might occupy us. When all the cases have been subtracted which can be explained by mechanical causes, a few remain which are partly ascribed to heredity and partly left without any explanation. It is probable that further study of these will bring to light constitutional causes, perhaps reaching back to foetal life. But the whole matter waits for patient investigation.

This review, then, while it shows very much yet to be accounted for, also shows that dental pathology is but a part of general pathology and can by no means be studied alone.

And yet when we turn to the dentist's daily practice, we are surprised to find how much all this may be left out of account, how overwhelmingly the troubles which he treats admit of purely local explanation and cure. Indeed, the man who broods beside his operating chair over remote causes and turns his best attention to general remedies, will by-and-by find that chair empty, and will learn that he is a practical failure.

Let us next view the matter, therefore, from this side and see to how great a degree dental pathology is local.

Nobody doubts that uncleanness of the mouth promotes decay; and no theory of electro-chemical action nor any discovery in bacteriology can shake this long established result of observation. It is equally certain that the careful excavation and filling of any given cavity always retards and frequently ends forever the morbid process.

It is worth while to add that when filling is unsuccessful and the question is raised whether the tooth or the operation is at fault, most practical dentists will incline, (if the operation is not their own), to suspect a fault in the filling.

One cannot speak quite so forcibly of local causes in pericemental disease. And yet the results of local treatment are so often beneficial that local causes must play a large part, and the attempt to trace these disorders back wholly to constitutional causes must not only fail but must seriously interfere with the discovery of improved local treatment.

As for the local causes of odontalgia, they are very numerous and sometimes so hidden that a diagnosis of remote causation is always to be looked on with suspicion and most rigorously questioned. And this, with a little less emphasis, is to be said of dental irregularities.

It might seem that such a survey as has been here made leaves the whole subject in confusion, and dentists must again divide into two opposing camps as in earlier days—the medical dentists and the operators.

But this can never be. There is no room for such strife, and if it could be attempted, the contest would be too unequal and would be speedily fought out. For all theories are subject to the test of facts; and the fact is that the reason of our existence as dentists,

the warrant for the high estimation in which our art has finally come to stand, is the possibility of relieving dental troubles by local operations. No amount of diagnostic acumen or of scientific learning will make a man a successful dentist who cannot give prompt comfort and safe assurance of future usefulness to the mouths of his patients.

The writer hopes to be particularly understood as building, whether at the chair or in an essay, on the intelligent, patient, and skillful performance of dental operations, as the corner-stone of dentistry. Whatever we may discover or invent, the day will not come in our time when there will not be ravages of past disease to repair and conditions of present disorder to cure.

It will be indeed a happy day for the science of the teeth if there ever arise men with the leisure and the learning necessary to work out the meaning of innumerable facts separately collected and recorded by practicing dentists. A single such man devoting his life to this study and to the verification of such conclusions as might be drawn, would make for himself a name and for dental science new means of usefulness, so great that we can as yet hardly estimate them. But no man can possibly do this who is tied to the operating chair; and the zeal that works without fee combined with the fortune which makes this possible, does not yet seem to have fixed its attention on dental science.

Meanwhile what can we, who must do our daily tasks, also do towards broadening the horizon of dentistry, towards hastening the happy day when dental disorder shall be rather prevented than cured?

Dentists have long nursed this hope, and the present paper aims to add another impulse in that direction.

It is no violent exercise of imagination to fancy the dentist of the future receiving a new patient. The chair, the mouthglass, the probes will all be there, and the examination, tooth by tooth, as minute as now. Then will follow a series of questions covering the ancestry, the habitual surroundings, the personal history and habits of the patient, and at last the dentist will give his judgment. "You have such and such defects of the teeth," he will say, "which will all be duly corrected. You have this or that constitutional weakness which has caused or promoted your dental troubles. Or your diet, your occupation your habits are at fault, and it will be necessary to make changes thus and thus." After six months perhaps the patient will return, the examination will be repeated, the regimen approved or changed as results may have appeared. In a few months or years the patient will have ceased to have any further dental disasters beyond the inevitable wear and tear of hard used organs; and after two or three generations a race will be produced in whom dental disorders will rank with pulmonary or ocular diseases, always possible but commonly escaped.

No thoughtful dentist will say the picture is too flattering, yet how delightful it is. And how are we to realize it? By holding fast the conviction that behind the local cause and effect there are powerful general causes; that these are not simple and manifest but difficult to trace and much interwoven; and that therefore they are not to be discovered by catching up some theory of phosphates, or rheumatism, or bacteria, but by the most patient accumulation and comparison of cases which now and then give some

valuable hint, and a slow induction of broad facts and general principles. As it will take several generations of patients properly guided to produce the dentition of the future, so it will take several generations of educated, diligent dentists to acquire the wisdom which may guide.

Perhaps it will seem a scanty outcome of so many words, but the conclusion of the whole matter is this: Besides the patient work of local treatment and repair from which we cannot escape, we must vigilantly watch and search for remote causes, we must question and compare unweariedly, we must nurse a wholesome suspicion of theories which explain too easily or too much; and we must count it a life well spent if, besides innumerable daily ministrations of comfort to our patients, we can at last contribute to our profession one step forward in a knowledge of the fundamental causes of dental pathology.

Discussion.

Dr. Talbot agreed with the essayist that the diseases of the teeth were often intimately connected with diseases of the system, and instanced two cases of patients suffering with pyorrhea alveolaris who had been under his care, but for whom he had not found it possible to effect any permanent good. The disease of the teeth affects the general system, and the disease of the system affects the teeth. In both cases he had advised long ago that the teeth should all be extracted and artificial dentures inserted in their place. All the teeth are sound, and the patients would not consent to lose them, though it is the only course by which they can expect to enjoy life. The patients have now become so physically run down that it is scarcely possible for them to get from their homes to their offices. They were of gouty diathesis, and when they had excess of acid in the urine the teeth would be surrounded with pus, and so loose that they scarcely could be kept in their sockets. The age of the patients was about thirty-five to forty-two years, and the trouble had been running on for fifteen or more years.

To understand such cases it is necessary to study the whole systemic condition. So also in neuralgia we often find the cause in a distant part of the body; for instance, it may be in the uterus, it may be from dyspepsia or a gouty or rheumatic condition.

Dr. Marshall said that one of the patients of whom Dr. Talbot spoke had come into his hands. He first looked for constitutional cause for the trouble. There was no tartar on the teeth. He made up his mind the patient was gouty, and upon examining the urine found a large excess of uric acid. Upon inquiring into his habits it was learned that he was an excessive meat-eater. Being advised to limit himself in this regard he improved, but he will not give up his meat to the extent necessary to avoid the trouble, so now and then he returns for local treatment, which is given, and he is told to return the next day, but he never does. When he has the severe suppuration there is always excess of uric acid; no doubt the excess of uric acid or the gouty condition affects the suppuration as a cause.

ORAL MANIFESTATIONS IN METALLIC POISONINGS.

Read in the Section of Oral and Dental Surgery, at the Forty-third Annual Meeting of the American Medical Association, at St. Louis, Mo., June 18, 1892.

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Many metallic poisons which are non-corrosive in character show the limit of their exhibition in the human system by manifestations of some nature in the oral cavity. Some of the corrosive metallic poisons also show this limit in the mouth. This is especially the case with the escharotic corrosive metallic poisons. In both acute and chronic metallic poisonings are found oral manifestations; but this

paper wishes to direct the attention to the oral manifestations arising from chronic metallic poisonings. There is a slight suspicion that the prolonged exhibition of arsenic, in proper doses to produce medicinal effects, may result in the death of the pulp of one or more of the teeth in the individual so treated. There is no authenticated case of this nature, but the theory of it, based upon a knowledge of the accumulative nature of arsenic, is a good one. Arsenic in its action has a predilection for glandular tissue, and if it accumulates in the liver, spleen, kidneys and lymphatics, why should it not use the lymphatics of the pulps of the teeth as storehouses? Upon the hypothesis of these pulp manifestations of arsenical poisonings can be explained the twofold nature of the drug arsenic, viz.: the corrosive and the neurotic; both of these effects being produced when the drug is applied locally, and only the neurotic effect being present from the internal administration of the drug and its subsequent accumulation.

Arsenic does not always destroy by corrosion but may, as it must in these cases, produce death of the pulp by over-stimulation.

If arsenical poisoning endangers the inner vitality of the teeth, their external vitality has also an agent of destruction in mercurial poisoning. Manifestations of mercurial poisoning are particularly marked in the oral cavity. Mercury has a selective action for the lymphatic glandular system, and the first indication of the presence of mercury is an increased flow from the salivary glands. Mercurial poisoning is very destructive to the periodontal membrane. This destruction is usually permanent and is exhibited by soreness and subsequent looseness of the teeth. Mercury in all its forms is synergistic to a destructive metamorphosis. The vitality of the general system is lowered by its internal administration, and the general action of the drug is rather to destroy than to build up the human tissues. The death of pulps too often results from mercurial poisoning. This arises from the placing in too close proximity to the pulp of so-called *fillings* (?) made of amalgam. The most skilled operator cannot possibly give to a certainty the prognosis of a tooth treated with an amalgam filling. If the tooth escape mercurial poisoning it is solely due to the degree of vitality possessed by it or the diminutive size of the filling, preventing a sufficient supply of the poison to produce death to the pulp. Many cases of chronic mercurial poisonings require several years to manifest themselves finally in the destruction of the pulps. Teeth into which have been stored large quantities of mercury in the form of amalgam rarely retain the vitality of their pulps for any length of time. Unfortunately for future generations the tooth does not die the day and often not the year that it is killed. I do not wish to deviate from the proper course of this paper to enter upon a discussion on amalgam as a filling material. Most of us use it, and it seems to be a necessary evil; but it must not be denied that many pulps are destroyed by mercurial poisoning caused by its use. The injury from the much vaunted external evaporation and subsequent absorption in the oral cavity of the mercury from amalgam fillings, pales into insignificance aside of the cases of the absorption of mercury by the canaliculi from the inner walls of the fillings. There is no doubt that many obscure cases of a neuralgic nature might be explained from mercurial poisoning of this kind. The

evaporation of mercury from fillings after they have become perfectly set is a theory and founded mostly upon the imagination. The absorption of mercury by the dental tubuli is a well authenticated fact which can be verified at all times. The specialist therefore as well as the general practitioner must shoulder the responsibilities arising from the administration of mercury; local mercurial poisoning destroying the internal vitality, and systemic mercurial poisoning destroying the external vitality of the teeth. The oral manifestation of lead poisoning is characterized by a blue line at the margin of the gums, usually on the inferior central incisors. In the internal administration of the drug the slightest appearance of this line marks the beginning of plumbism, and where the administration should be stopped. It is claimed by some good authorities that this blue line is due to the deposition of sulphide of lead and is only found in the mouths of individuals suffering from lead poisoning and who do not use tooth brushes.

If this is sometimes true it is not always the case, for I have found the line in persons with scrupulously clean mouths, and where all attempts to remove it by mechanical means were futile. The blue line must be explained upon some other hypothesis than a mechanical one. The mucous membrane seems to have a selective action for lead and the blue line is the inflammatory result of the deposition of this irritant. An argument against the mechanical theory also is that the deposition, if it proves to be such, is found in a place very freely bathed in saliva; while those parts of the teeth comparatively free from saliva show no signs at all. The blue line cannot always be taken as proof positive of lead poisoning. Mercurial poisoning will often produce the same condition; but a differential diagnosis can be made, if not by the history of the case by the number of teeth affected, the lead poisoning being restricted to the front teeth. What is more difficult is a differential diagnosis between lead poisoning and pyorrhœa-alveolaris in its first stage. The blue line in both conditions is frequently identical and we are compelled to depend upon the history of the case. This history often becomes very obscure from the patient's unwillingness to divulge the secret of her beautiful complexion or his brown or black metamorphosed head of hair. Time clearly determines the diagnosis, however, lead manifesting its characteristic constitutional symptoms and the arrival of the pyorrhœa-alveolaris at the pus stage.

The specialist is frequently the first called upon on account of the unsightly appearance of these blue lines; and this local symptom may for a long time remain the only sign of the trouble, there being no systemic symptom marked enough to attract the attention. This local lead poisoning may be brought about by the use of tooth powder. What occasion there is for making lead an ingredient of tooth powder may not appear clear to the intelligent practitioner; but that it has been found there is an authenticated fact. Powdered acetate of lead is usually the compound used, and its virtue to the stupid and unprincipled tooth powder-charlatan lies in its styptic and hæmostatic properties. If you have a case of lead poisoning do not be satisfied with examining the face powder and hair dye, but examine also the tooth powder used by the patient. There may be other metals that would manifest their poisonous properties in the mouth; but there are none which

on account of their use are capable of abuse and manifest their abuse in the oral cavity more than arsenic, mercury and lead.

Discussion.

Dr. Fletcher said he had not used any of the poisonous substances, with the exception of arsenic, for the devitalization of pulps, and had never seen the blue line on the gums indicating lead-poisoning.

Dr. Barrett did not think the death of the pulp caused by the application of arsenic could be due to over-stimulation, or to anything else than the corrosive effect of the drug. It has been claimed that it is caused by strangulation of the pulp, by causing a swelling of the pulp and a consequent constriction of the apical foramen. The falsity of this idea is proven by the fact that the effect is produced in children's teeth as well as adults', and it is well known that there is no apical foramen in children's teeth; and it produces the same effect on other tissues where there is no possibility of strangulation. As to mercury, we know that this substance has toxicological possibilities which no other substance has; that it is very unstable in its compounds, and apt to unite in new combinations when brought into contact with various substances, and so we need not be surprised at any effect produced by it, provided there be anything with which it could combine to produce a new compound; but he could not conceive that the mercury from an amalgam filling should be absorbed by the tubuli and go back into the system to work harm.

Dr. Talbot asked Dr. Barrett how he explained the dark color in and around teeth having amalgam fillings.

Dr. Barrett thought that in some cases at least it was caused by the union of some of the other components of the amalgam with the fluids of the mouth or teeth.

Dr. A. E. Baldwin said he was ignorant of the use of acetate of lead as an ingredient of tooth-powder, and thought such a reckless use of such a dangerous substance could not be too severely condemned. In regard to the argument of Dr. Barrett that the action of arsenic in the teeth of children proved that this drug does not effect the death of the pulp by means of strangulation, he did not think the proof was conclusive. There might be a strangulation in the blood-vessels, a constriction sufficient to cause the death of the pulp. And in regard to the statement in the paper of the absorption of mercury into the system through the canaliculi of the teeth, we can hardly accept that either. Amalgam is a chemical union of two or more metals, an alloy having peculiarities differing from those of any of the constituent metals, and the mercury could only be absorbed as a vapor. There are more idiosyncrasies of patients in regard to the use of mercury than of any other material. Some are disastrously affected by the mere contact of mercury with any of the membranes, even in small quantities.

Dr. W. W. Allport:—Just what the process is by which arsenic effects the death of the pulp is a mooted question; yet he has been inclined to believe that the theory advanced by Dr. Flagg several years ago, that it was by strangulation, is nearly correct. It seemed to him that a little thought would satisfy Dr. Barrett that the effects of arsenic on the pulp of a tooth and upon the soft parts of the mouth were entirely different. When arsenic is applied to the gum, the effect is continuous; applied to the pulp, death occurs within an hour. Another thing: it usually takes longer to destroy the pulp in the tooth of a child than in an adult.

As to the effect of mercury, we all know that teeth long filled with amalgam become brittle, showing that the mercury has affected the structure. This effect, it seems, must be from the evaporation of the mercury, and the vapor would naturally be in the direction of the least resistance—that is, between the filling and the tooth itself.

Dr. J. Taft said there could be no question of the effect of arsenic upon the soft tissue. A very minute quantity coming in contact with the gum will devitalize that portion of the gum and cause a slough. Some years ago a dentist announced a discovery by which a tooth firmly held in the jaw could be made so the extraction would be an easy matter. His plan was to take a line string, moisten it, and after drawing it through arsenious acid, tie it around the neck of the tooth just below the edge of the gum. The action on the gum was such as to make the tooth easy of removal, but the after-effects of course were serious.

We cannot explain just how arsenic acts on the pulp; but the fact that the pulp to which it is applied is found to be disintegrated proves that the action is not strangulation.

In regard to the action of mercury on a tooth, when a

tooth receives an amalgam filling the tooth-substance may be stained. This staining is not superficial; it penetrates the dentine; sometimes it is not very marked, and sometimes the dentine is blackened through and through from even a very small amalgam filling. This effect is produced by the penetration of the vapor of mercury into the tubules and its oxidation there.

It has been argued here that as amalgam is a chemical union of metals, it does not have the same characteristics of any of its component parts; but we all know that there is always an excess of mercury, so there is no doubt that the material for evaporation is there. Mercury will always vaporize at the temperature of the mouth, or even at a much lower temperature, down to freezing point. This may be tested by exposing a piece of gold foil where there is free mercury; within a few days the surface of the gold foil will be covered with mercury. The distance the vapor will penetrate into the dentine will be determined by the density of the structure. The vapor of mercury is so subtle that it is scarcely possible to get a joint tight enough to hold it. So we see that when teeth are filled with amalgam we have free mercury, and that the vapor will come from it, as the circumstances are in every way favorable. In very susceptible constitutions it is reasonable to believe that it may exert an influence on the general system. I think there are cases in which it does.

Dr. Talbot related experiments by which he had proved that the vapor of mercury was constantly given off even by very old amalgam fillings. He had had patients who had been injuriously affected by amalgam fillings. When the amalgam was removed and gold inserted, they had recovered. He said that he himself was an instance of unusual susceptibility to mercurial poisoning, and that if he should rub up two amalgam fillings in the palm of his hand each day for three successive days, he would be attacked by paralysis agitans.

Dr. Junkerman, in closing the discussion, said that the corrosive effects of arsenic when brought into contact with the soft tissues were well known, as shown when it is accidentally placed in contact with the gum. The stimulating effect upon the system is also well known, and can be tested any time by taking a dose of Fowler's solution. The effect is stimulating and exhilarating, but he thought the effect on the pulp was a corrosive one, as the disintegration of the pulp indicated.

That mercury is absorbed by the tubules of the teeth has been proven by extracting the globules from the dentine of teeth which have been long filled with amalgam.

As to the use of acetate of lead in tooth-powder, he had discovered it from the fact that he had a patient, a lady, who showed indications of lead-poisoning. To try to find the cause of the trouble, he asked her for a sample of her face-powder. This was furnished, and also a sample of her tooth-powder. The face-powder was found to be harmless, but on testing the tooth-powder he was astonished to find that it had the acetate of lead in it.

Dr. Clifford asked why, when mercury was used in excess in copper amalgam, the filling becomes black, but the teeth are not discolored?

Dr. Junkerman said it was possible that the oxide of copper formed, and prevented the absorption of the mercury by the teeth.

REMARKABLE SEQUENCE OF OPERATION FOR NECROSIS AT BASE OF SKULL: A NEW METHOD OF RESECTING THE THIRD BRANCH OF THE FIFTH NERVE.

Read before the American Medical Association, at Detroit, June 1, 1892.

BY G. LENOX CURTIS, M.D.,
OF NEW YORK.

About a year ago a case came into my hands for operation, which presented unusual features of interest from the surgical standpoint, not merely on account of the immediate results, but because of the suggestion which it afforded of a decided improvement in an important surgical operation.

On May 15, 1891, the patient, Miss M., aged 25, a professional nurse by occupation, presented a note from Charles

M. Magee, M.D., of Syracuse, N. Y., asking me to make a careful examination of her symptoms and condition, and stating his opinion that she had been suffering for the preceding five months from confined pus, somewhere at the base of the skull. He had, the note added, sent the patient to her dentist some two months before, but no trouble was found, though on the day previous to her coming to me the dentist had discovered pus coming from around one of the teeth.

The right side of the face was considerably swollen. The eye on that side protruded from its socket. The sight of the eye was, however, normal, while the left eye, which retained its normal position and was apparently not involved in, or related to, the trouble which had forced its companion out of position, was almost totally blind. With the right eye closed, the patient could merely distinguish the difference between daylight and darkness. Questioning her it was brought out that, as far as she knew, she had never had the use of the left eye. She had first detected the fact that it was useless to her at the age of seven years, and she had always supposed that its ecclity had dated from her birth. She had no recollection of any traumatic injury to which the disability of the eye could be referred. Clearly there could be no connection between the present condition of the patient and the blindness, which was therefore dismissed from the consideration.

The history of the case from the time serious symptoms were first observed, is perhaps best told in the following statement of the patient:

"First appearance of head trouble was in the latter part of January, 1890, when I had an attack of la grippe; was confined to bed two days; in the house a week. Had more or less headache afterward, but no serious trouble until July of the same year, while in charge of a patient in the country; I was taken in the night with a severe chill, followed by headache and bone-ache. There was also a watery discharge from the eyes and nose, and I lost all sense of taste and smell. Did not seem to get over what appeared to be a cold in the head, but at the end of the second week after the chill, I went on duty again. The pain and fullness seemed to increase until the fourth day, when I was obliged to take to my bed. Had more or less ear-ache and faint turns and dizziness, and was brought home on my bed. Expected to have an operation performed, but on reaching home, it was decided that this was not best. Was confined to the house with this attack seven weeks, and was not able to work until the latter part of October. In January face was somewhat swollen, followed in February by a discharge from the right nostril; head was relieved as long as the discharge kept up, but when it stopped the pain and pressure were intense."

Examination confirmed the suspicion of Dr. Magee. On passing the electric lamp into the nostrils and posterior pharynx, marked opacity was observed throughout the entire right superior maxillary region, and extending far back in the direction of the ear, indicating disease of the antrum of Highmore and congestion of the surrounding tissues. The patient's physical condition was so unfavorable, however, that it was decided to defer operation until she could be strengthened for the ordeal. She was accordingly placed on an anti-pyemic treatment, with such good results that on June 2, the operation was performed with the aid of Dr. Magee, who also administered the anæsthetic, and my regular assistant. As in most of these cases, the operation was performed through the mouth, so as to avoid a scar on the face. The first step was the extraction of the second molar on the left side, the second bicuspid and the first molar having already been lost. The wisdom-tooth, or third molar, was allowed to remain, as its removal was unnecessary and it would serve a good purpose as an anchorage in case a bridge piece of artificial teeth should be required. A flap of gum having been turned back the bone was cut away from between the anterior surface of the wisdom tooth and the distal surface of the second bicuspid, the alveolar process being removed with it, and the cut extending along the buccal surface of the superior maxillary bone about a half inch.

On entering the antrum, that cavity was found to be entirely filled with multiple mucous cysts, pus, and granulations, but there was no evidence as to the origin of the accumulation. The posterior wall was absent, and the edges of the bone surrounding the opening were rough and dead, showing that necrosis had occurred. In exploring beyond this opening an accumulation similar to that in the antrum itself was discovered, except that it contained no mucous cysts, being composed entirely of pus and granulations, extending as far back as the junction of the sphenoid and

temporal and up on the zygomatic arch. The external surface of the pterygoid process and two-thirds of the greater wing of the sphenoid bone were entirely denuded of periosteum.

In all nearly a half-pint of diseased tissue was removed. The surface of the wing of the sphenoid, which was denuded, was necrosed, necessitating its removal with the bur and curette. As the necrosis involved the foramen ovale the nerve and artery were pressed aside to allow of the removal of the necrosis around the foramen. The necrosed bone removed, extended over the lower two-thirds of the external surface of the great wing of the sphenoid bone, the zygomatic surface of the external pterygoid plate, the entire zygomatic surface of the superior maxillary bone, and throughout most of the surface of the antrum, though the necrosis was less marked in this territory. Thorough cleansing was secured with carbolated solution followed by solution of bichloride of mercury. The entire wound was then packed with iodoform lint, which was not changed until the fourth day. Fever was very slight, there having been only two degrees rise in temperature, and this subsided upon the redressing. The wound was dressed in the same way for two weeks, after which the dressing consisted of injections of bichloride of mercury and peroxide of hydrogen, twice a day, and carbolated solution every two hours. A gold tube was finally put in the antrum, attached to the wisdom tooth, to facilitate syringing out the closing wound, and as a drainage outlet, and in due time was removed. The patient was able to attend to the dressing of the wound herself after four weeks following the operation, and the case progressed favorably and rapidly. The wound in the jaw soon closed almost entirely, there remaining only an opening just large enough to pass a probe through with difficulty. There is no deformity of the face. The right eye, with the removal of the cause of its protrusion, has returned to its normal position. The patient's health and strength have been entirely restored, she having gained twenty pounds in weight since the operation, and having a greater degree of vigor than for years previous. She has been able to pursue her accustomed vocation for some ten months.

The remarkable feature of the progress of the case after operation was the establishment of sight in the left eye. It will be remembered that the patient had no recollection of ever having had any degree of useful vision with this eye, that, so far as she was aware, it had been blind from her birth. The first indication of incipient visual power in this eye was observed on the third day. On the fourth or fifth day the patient could count with the left eye unassisted, the fingers on a hand held at a distance of four feet. In two weeks she was able to distinguish objects with some degree of clearness, and could recognize those about her. By September the sight had strengthened so that she could read the head-lines in a newspaper, two months later even small capital letters were easily read, and gradually, with the aid of a strong glass, ordinary print could be deciphered without difficulty.

This surprising and gratifying result opens up a wide field for speculation as to the ultimate and proximate causes of the previous blindness of the eye, and, as well, the *rationalité* of the removal of this defect. Little is hazarded in the conjecture that the point of interference with the natural office of the optic nerve, was probably at some portion of the optic tract on the right side, since this region was involved in the territory of diseased tissue, and the affected eye was on the opposite side from the lesion operated for. It is, perhaps, not necessary to rehearse here the anatomy of the parts, a brief study of which will show that it is scarcely possible that the malignant influence could have been exerted elsewhere.

As to the character of the interference, it would seem to have been in the nature of pressure producing a form of strangulation, which inhibited the normal function of the optic nerve. The history would lead also to the suggestion that the beginning of the

formation of broken-down tissue was made very early in the life of the patient, perhaps from a tumor at birth, which impinged upon the optic tract, and thence extended slowly, passing downward through the sphenomaxillary fissure, and by pressure absorbing and destroying the soft and hard tissues in its course, until the posterior wall of the antrum was broken down, and the antral cavity itself became choked with the products, the attack of *la grippe* acting simply as the spark to fire the mine which had been so long preparing. The subsequent train of symptoms is self-explanatory in the light of the condition shown by the operation.

Of course, it would be interesting and instructive to be able to determine exactly what was the primal factor in setting up the disturbance. The hypothesis above advanced seems the more reasonable in view of the fact that the idea of traumatism is scarcely admissible. The possibility of adenoids being at the bottom of the mischief may also be advanced, but guesses at the remote origin of the difficulty would now be futile.

It would be vastly more profitable to consider a fact which the operation conclusively demonstrated, namely, that resection of the third branch of the great trifacial at the foramen ovale, can be accomplished in a much more skillful manner than that now commonly employed. As is well known to you, the usual method is to cut from the outside, and the equally usual sequence is an unsightly scar upon the face. In the case described I did not resect the inferior maxillary nerve, but I did curette the necrosed bone away from around it, and I could distinctly see the nerve and most of the bone which was curetted. This would indicate the entire feasibility of reaching the third division of the fifth nerve when it is necessary to resect it at the foramen ovale by operating within the mouth. The parts are as readily accessible as by external operation, the wound heals readily, and no deformity will be caused. In operating after the suggested method, it should be borne in mind that the wounds in the mucous tissue of the mouth are liable to become niduses for the propagation of infectious bacteria, and it will therefore be necessary to guard against such a possibility by the adoption of the proper precautions. This, however, is no more than is requisite in the external operation.

THE FORTHCOMING REPORT OF THE BUREAU OF EDUCATION ON PRO- FESSIONAL EDUCATION IN THE UNITED STATES.

BY BAYARD HOLMES, B.S., M.D.

SECRETARY OF THE COLLEGE OF PHYSICIANS AND SURGEONS OF CHICAGO.

It has been my pleasure and rare opportunity to look over the proof sheets of chapters IX and X in the forthcoming *Education Report 1889-90* on professional schools. These chapters have been prepared by Wellford Addis of the Bureau.

MEDICAL SECTS.

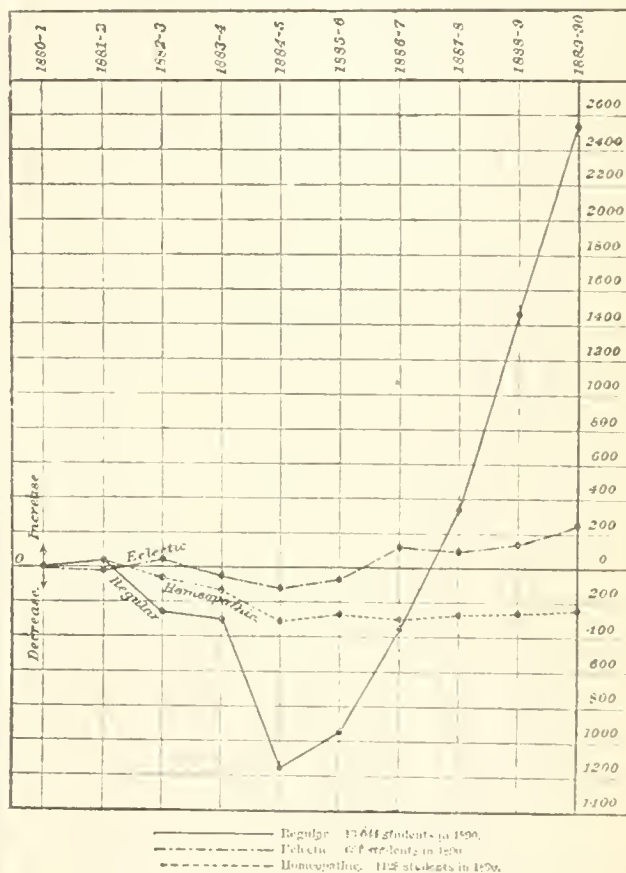
One is pleased to see the diagrams which show such gratifying improvement in many directions. Thus, at this time, when the question of "the code or no code," is separating the American Medical Association into two factions with age and dignity on one side and youth and humanity on the other, a

glance at Diagram 14, which is here reproduced will convince the most fearful that the abuse and misinterpretation of a single clause in the code need not shatter that almost inspired document. The equitable adjustment of the "medical sect" question can be furthered by devotion to higher objects in medical education. Some of these objects will be set forth in this article.

DIAGRAMS OF PROFESSIONAL EDUCATION.

855

DIAGRAM 11.—Showing fluctuation of attendance at the schools of each of the three medical sects in the United States during the period 1880-90.



In looking over the statistics of the medical schools in Germany and France, one is surprised to see the strong advance of medicine in Germany during the past fifteen years. The actual fact of this advance is put forth by Diagram 1. To appreciate what this increase in the number of medical students in comparison with students of law and theology means, it must be remembered that in Germany the professional schools are integral parts of the University. Entrance to the professional schools depends on the previous completion of the course in philosophy, *i. e.* it depends on completion of a course at least equal to that represented by the A.B. or B.S. degree with us. Notice the fact that as medicine became more a science and especially as pathology became more carefully studied (1876 *et seq.*) and as surgery became under the use of antiseptic methods more successfully practiced, that the number of aspirants for a medical career rapidly increased. As we all know, medical literature has been enriched more by German labor during this period than by the labors of all other nations. The same activity is not to be found in any other department of University educa-

tion though there is a similar though lesser wave in the attendance in theology. This parallel between medicine and theology is to be found in almost any table.

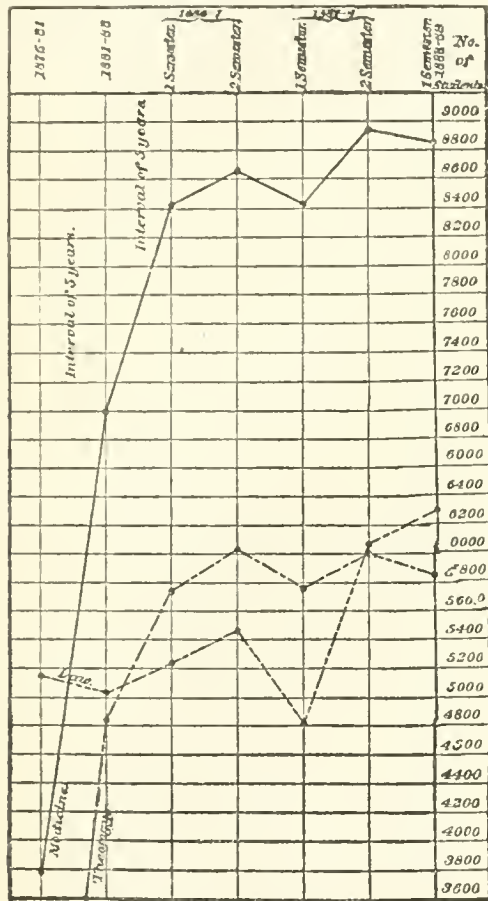
In France, where education is bureaucratic from Kindergarten to the National Academy, much the same increase in attendance in the medical schools is to be seen. But, as I believe, because medicine was relatively in a much better condition in France at the beginning of the antiseptic period than in Ger-

many in any such sense as they are in Germany. Most schools of law, medicine and theology are open to any applicant with even the rudiments of a "common school education." The course of study is shorter and, in medicine, graduation entitles the holder of the diploma to license to practice. From all of these causes and because our people require and pay for more, if not for better, medical service than the Germans and French, the ratio of medical students is, with us, absolutely and relatively greater than in either of these countries. Thus in 1881, in the United States, there were 25 students of medicine, 6 students of law and 9 students of theology to each 100,000 inhabitants, while in 1890 there were 24 students of medicine, 7 students of law and 11 students of theology in the same unit of population.

838

EDUCATION REPORT, 1889-90.

DIAGRAM 1.—Showing movement of the enrollment in the faculties of law, medicine, and theology, in twenty-two German universities during thirteen years.



Medicine, 8286 students in 1889.
Law, 6304 students in 1889.
Theology, 5819 students in 1889.

For every 100,000 inhabitants in Germany—	Students in		
	Law.	Medicine.	Theology.
There were in 1881	11	8	6
" " " 1889	13	12	11

many, this rise is not so noticeable. Law is relatively more prominent in the University in France than in Germany. In 1880, in each 100,000 inhabitants in France, there were 11 students of medicine and 14 students of law. At about the same time, in Germany, there were 8 students of medicine and 11 students of law to the same unit of population. This changed so that in 1888, France had 17 students of medicine and 14 students of law, and Germany had 18 students of medicine and 13 students of law to each 100,000 population.

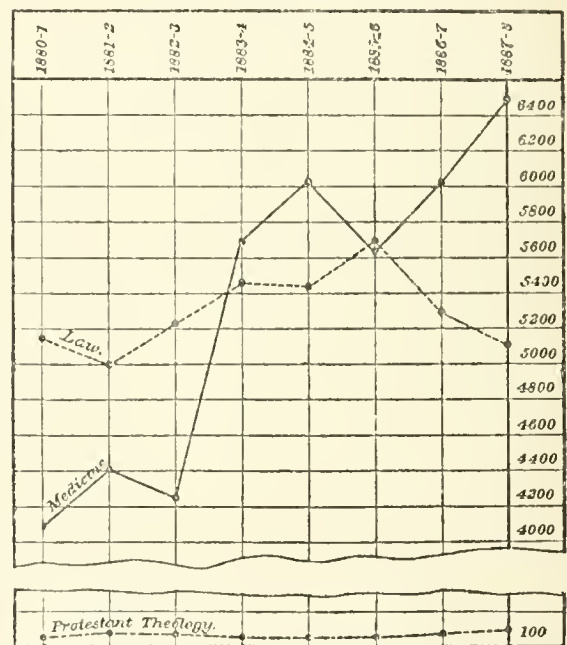
It is interesting to compare the attendance of American professional schools with the preceding statistics. It must be remembered that the American professional schools are not parts of Universities

840

EDUCATION REPORT, 1889-90.

DIAGRAM 2.—Showing movement of the enrolment in the State Faculties of Law, Medicine, and Theology in France during eight years.

[Scale same as diagram 1]



Medicine, 6455 students, including candidates for the *agrégation* in 1888.
Law, 5132 students, including candidates for the *certificat de capacité* in 1888.
Protestant Theology, 101 students in 1888.

For every 100,000 inhabitants in France	Students in	
	Law.	Medicine.
There were in 1881	14	11
" " " 1889	14	17

ENDOWMENT OF PROFESSIONAL SCHOOLS.

We have complained in these columns and elsewhere of the neglect of medicine by the Universities of the United States.¹ This becomes apparent when we consider the amount of financial support schools of medicine receive from University corporations and from States.

The *productive funds* in the hands of medical schools, both those connected with and those independent of Universities in the United States was in 1889, \$249,200 while at the same time there was in the hands of schools of theology, productive funds to the amount of \$11,939,631. The value of buildings and grounds used by medical schools at the same time was \$4,047,618, and the theological schools were accommodated with buildings and grounds

¹ V. Article by the author, *Journal Am. Med. Assn.*, July, 1892 and *University Magazine* October, 1892.

valued at \$7,762,095. It must be remembered that in the case of the medical schools these buildings and grounds were covered with mortgages. This was not often the case with the theological schools.

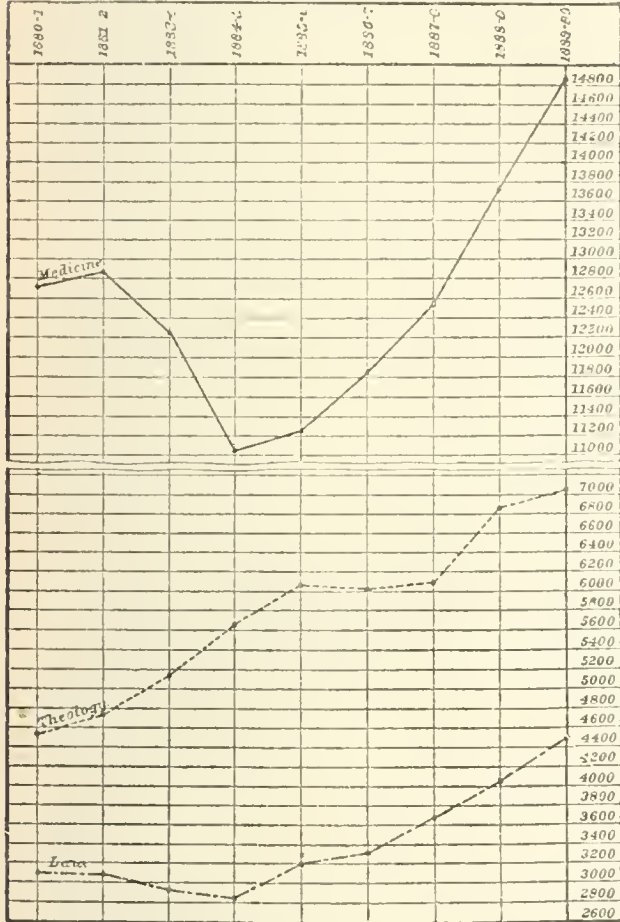
The contrast is still greater when we consider the number of students, the receipts from fees, and the expense of these schools outside of salaries of teachers. Unfortunately it is impossible to give

842

EDUCATION REPORT, 1889-90.

DIAGRAM 3.—Showing movement of enrollment in schools of law, medicine, and theology in the United States during the period 1880-90.

[Population 62,621,250, area 3,625,000 square miles. Scale same as Diagram 1.]



For every 100,000 inhabitants in the United States, there were in 1889:

Students in	Law	Medicine	Theology
1880	7	25	9
1890	11	21	13

this last item, as private corporations are not ready to open to the public their financial affairs. The medical schools had in 1889, 12,238 students who paid tuitions to the amount of \$763,761, while at the same time the theological schools enrolled 6,989 students.

I am able to reinforce these figures by an abstract of the statistics for medicine, theology and technology as reported to the Bureau in June, 1892. The medical schools possessed buildings and grounds in 1892 valued at \$7,507,937, and productive funds amounting to \$611,214. Medical departments of State universities also received State aid in 1892 amounting to \$40,500, which, if capitalized at 5 per cent., would be equal to an endowment of \$810,000; making a total endowment of \$1,421,214. There were 16,731 medical students in attendance.

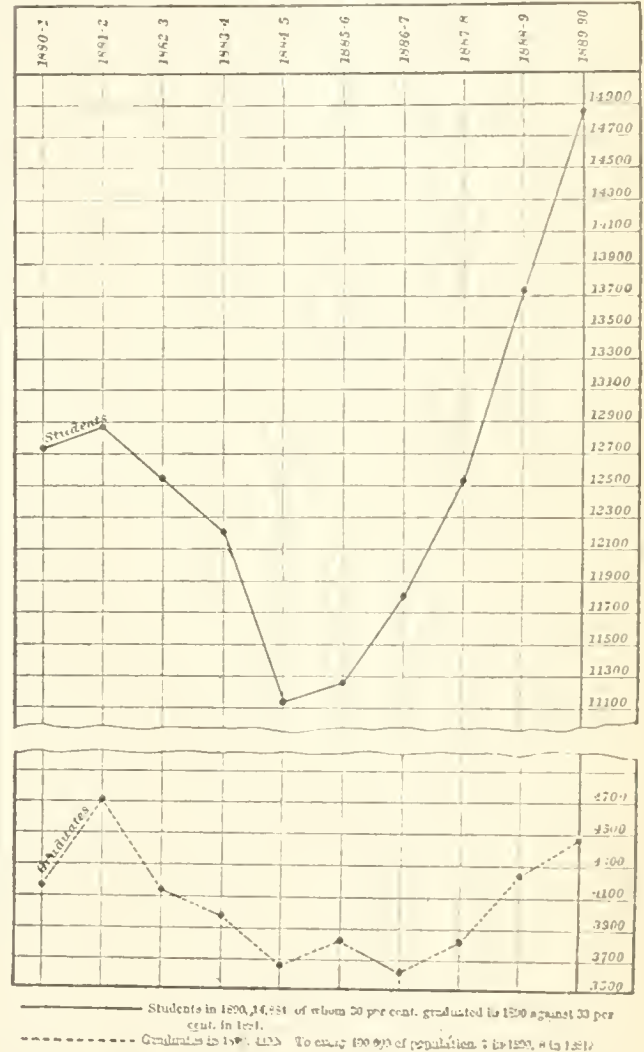
The theological schools report productive funds amounting to \$17,599,979, and stated, at the same time, the value of their buildings and grounds was \$10,720,860. They had 7,672 students in attendance.

Technological schools report productive funds amounting to \$13,229,940. These institutions received from State appropriations or municipal aid in 1891-92, \$747,504, which, if capitalized at 5 per cent., would be equivalent to an endowment of

854

EDUCATION REPORT, 1889-90.

DIAGRAM 13.—Showing enrollment and graduates for the period 1880-90 in medical schools of the United States.



\$14,950,080; making a total endowment for schools of technology of \$28,180,020. There were enrolled in the schools of technology 10,921 students, about one-third of whom were in preparatory courses. It will thus be seen that the endowment of theology is increasing at the rate of about two million dollars a year. The technological schools are well provided for but medicine has scarcely raised its endowment, even at the most liberal estimate, to a million and a half.

COURSE OF STUDY.

Diagram 13 shows that, making allowances for ordinary loss of students from year to year, the length of the medical course was hardly three years in 1890; as the graduations are thirty per cent. of the enrollments. This allows a loss of only three per

cent. in two years. This experience has shown is quite five per cent. a year.

The course of study is again abbreviated by the absurd custom of having medical schools open only one half the year. This means that almost 5,000,000 of dollars lie unproductive one half the year. In dollars, this is a loss of \$250,000 a year. In educational units, it means that students receive only two-thirds the training they are supposed to receive. In plain English it means that in the United States in 1890, 4,500 men were given the degree of Doctor of Medicine after studying, on an average, less than eighteen months in medical school. When we consider what the average medical schools offers each winter this is truly an appalling statement.

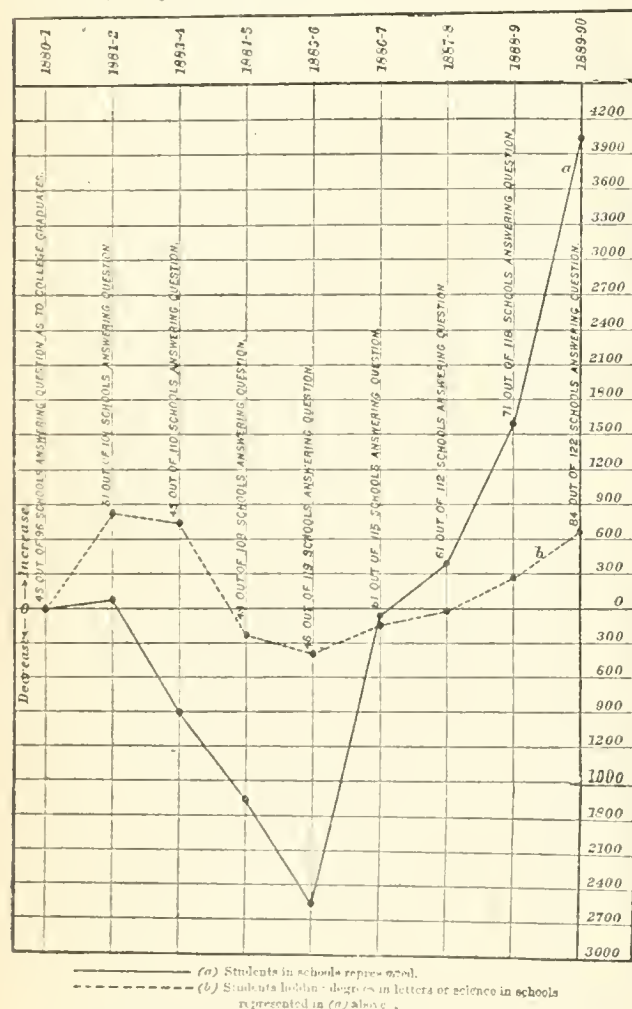
PRELIMINARY EDUCATION.

Is it any wonder then that educated men, who are trained in our better class of colleges and scientific schools, turn away from medicine in disgust. Diagram 15 shows the relation between total matriculates in reporting medical schools and those having degrees in letters and science in the same schools.

856

EDUCATION REPORT 1889-90.

DIAGRAM 15.—Showing relation between the number of students in certain medical schools of the United States, and the number of these students holding degrees in letters and science, during the period 1880-90.



That portion of the report which deals with this subject is worthy of reproduction here.

"Of the 96 institutions reporting to the Bureau in 1881, 42 returned 1,111 students having a degree in letters or science,

and three reported definitely that they had no scholar with a degree. In these 45 institutions there were 6,625 students. Thus in every 100 students there were 17 who it may be said had been liberally educated. If the other institutions (51) had reported specifically that they had no students who had received a degree in letters or science the whole attendance as far as reported to this Bureau (11,399) could be, and no error occur, compared with the number of students who were reported as having obtained a degree by the schools which answer the question definitely in the affirmative or negative. If we assume, however, that these 50 institutions had no matriculate in attendance having a degree in letters or science, then to do justice to the several parts of the country, comparison may take the following form:

	New Eng. and Mid. States.	South Atlantic States.	South Central States.	North Central States.
1881.				
	Per Cent.	Per Cent.	Per Cent.	Per Cent.
Ratio of Matriculates having a degree in letters to students in all medical schools in each section of the country	11	6	2	7
Ratio of matriculates having degrees in letters or science to students in medical schools that reported students with such degrees in each section of the country	20	11	8	15

Continuing this sifting process by considering eleven schools of medicine which are departments of a university, it happens that at:

1881.	Attendance.	Had deg. in letters or science. Per cent.
Harvard Medical School	243	49
Yale Medical School	21	48
Coll. Physicians and Surgeons (Columbia College)	547	31
Medical Department of the University of Penn'a	375	26
Medical School of Maine (Bowdoin College)	112	20
Medical Dept of the University of City of New York	623	19
Medical Department of the University of Vermont	50	12
New Hampshire Med. Institution (Dartmouth Coll.)	91	7
Dept of Medicine and Surgery, University of Mich.	380	16
Medical School of the University of Missouri	40	43
Chicago Med. Coll., Northwestern University	150	20
Total	2,635	Average, 22

Considering the statistics of the eleven individual medical schools as before at

1889-90.	Attendance.	Had deg. in letters or science. Per cent.
Harvard Medical School	290	43
Yale Medical School	55	30
College of Physicians and Surgeons (Columbia Coll.)	619	36
University of Pennsylvania, Medical Department	485	26
Medical School of Maine (Bowdoin College)	81	21
Medical Dept of the University of City of New York	633	17
Medical Department of the University of Vermont	205	19
New Hampshire Med. Institution (Dartmouth Coll.)	83	16
Chicago Med. College, Northwestern University	237	3
Dept of Medicine and Surgery, University of Mich.	372	10
Medical School of the University of Missouri	21	6
Total	3,081	Average, 23

Finally let us consider the statistics of the year 1889-90. 110 institutions have reported to this Bureau, 78 of which reported definitely the number of students having a degree in letters or science, or they have no student possessing such a degree. In these 78 schools 15 per cent. of the matriculates had obtained a degree before entering upon the study of medicine. The absolute figures are, sixteen schools with no students enrolled who had obtained a literary or scientific degree, 62 schools with 1,382 students having a degree; total enrollment in the 78 schools 9,389. Adding to the enrollment of the 78 schools the enrollment of the 32 which answered "don't know" no data, etc., the total enrollment of the 110 schools reporting is 13,793. Comparing the enrollment in these 110 schools with the number of matriculates reported by the 78 schools as having degrees, the result is that 10 per cent. of the enrollment in the medical schools of the country were possessors of a degree in letters or science. Considering the States by sections and including only the 78 schools which reported

15 per cent. of their matriculates having a degree in letters or science it is found that 18 per cent. of the matriculates in the medical schools of the North Atlantic division had a degree in letters or science, 13 per cent. of the South Atlantic division, and 18 per cent. of the South Central division (including Tulane University estimated at 25 per cent.), of the North Central division, and 9 per cent. of the Western division. These figures show a diminution for the schools of the North and an increase for those of the South.

From the foregoing statements it appears that there has been a slight *reduction* in the number of matriculates (17 in every 100 in 1881, 15 in every 100 in 1890) at medical schools, who had received a degree in letters or science; while the statistics of the eleven departments of universities (where one would expect a large per cent. of the matriculates to have obtained degrees) show that there has been an increase of but 1 per cent. in the matriculates who had obtained a degree in letters or science. Indeed in the instance of the College of Physicians and Surgeons (the medical department of Columbia College) of New York City a decrease of 2 per cent. is shown when the per cent. of enrollment for the decade 1870-80 (37 per cent.) is compared with that for 1880-90 (35 per cent.); or comparing the per cent. for the first half of the decade 1880-90 with the second half, a reduction of over 3 per cent. is shown.

The question then is: Has there been no improvement in the scholarship of the matriculates at medical schools?

The first of several questions asked on the form of inquiry sent out at the close of the school year 1889-90 was "Have you noticed during the last decade that the students of later years were, in a scholastic sense, better prepared to enter upon the study of medicine than those who preceded them?" Of the 86 regular schools reporting, 75 answered the question, 67 in the affirmative and 8 in the negative. Of 7 eclectic schools only one answered "No." Of 13 homoeopathic schools 12 answered "Yes," one fails to answer.

How are these facts to be reconciled? Statistics show that the number of matriculates having a degree is not increasing relatively to attendance. (page 879. See diagram 15), and yet the medical schools are almost unanimous in asserting that there has been an advance in the scholarship of the matriculates. Is this unanimous report as to the advanced scholarship to be attributed to an increased attendance at the medical schools of the country? Are more graduates of high schools matriculating at medical schools? If we compare the attendance of secondary schools (exclusive of public schools and departments of normal schools and of institutions for superior instruction) for 1880-81 with that for 1888-89 we find that there has been an increase in the attendance of schools for secondary instruction of 13 per cent. If we compare the attendance at the public high schools of 132 cities for 1880-81 with the attendance in the public high schools of these cities in 1887-88 an increase of 37 per cent., is shown. Or, speaking upon the subject from the still more general standpoint of population and considering that the public high school is always a feature of urban life, it may be concluded that the increase in urban population during the decade 1880-90 has increased the high school attendance of the country at large.

Some confirmation of the idea that the improvement in the scholarship of matriculates at medical schools is due to the high school, is found in the great protest against secondary and collegiate education because it tends to overcrowd the learned professions, especially those of law and medicine. But a protest is entirely too insecure a foundation to build a theory upon. What is necessary is information as to the localities whence the matriculates of medical schools come, whether from towns and cities or from the rural districts, for public high schools with few exceptions are located in the centers of population and rest on a system of grades beneath them from which they are fed. The public high school of the rural districts it should be said is in many cases the State normal school or agricultural college.

In examining the reports made to the Bureau some expressions are found that corroborate what has been suggested above. A medical school of California in answering the question as to the better scholarship, answers "Decidedly so," and adds, "18 had attended universities, academies, or colleges, 12 were graduates of high schools, 17 were graduates of the State Normal school or held educational diplomas or first grade certificates, and 40 passed examinations." A Southern school in denying improvement, adds, "The common school system has destroyed the private schools, and only an elementary education can be had outside." (There is no normal school in this correspondent's state). The

medical department of the celebrated University of the Northwest replies, "Our students average far better now than formerly, and nearly all who enter now (who are not possessors of a degree) are graduates of high schools." While one of the foremost universities of the Southwest reports in the affirmative, adding, "Many of our matriculates being graduates of high schools or universities." A college of Ohio makes a very striking answer in saying, "Yes, as to students who enter under 25 years of age, no, to those who enter above 25 years." And a Southern college answers, "I have noticed an improvement in this respect, but it must be remembered that the students from the South now seeking admission to our colleges received their education (literary) during the decade following the war when educational matters were chaotic."

Of 110 schools, 86 answer the question: "Has the average age of matriculates advanced?" Two-thirds of these answered no, and ten of them say the average age has diminished. The Hospital College of Medicine (Central University) reports the age of seniors in 1880 as 26, in 1885 as 28, in 1890 as 27. One college reports, "Age diminished, mental calibre advanced."

It cannot, then, be doubted that relatively a smaller number of medical students have the bachelor's degree than in 1880, though the education of the average medical student is superior to the education of the average medical student ten years ago.

Last summer, many of the college journals gave in the June number the statistics of the graduating class. I selected out seven such compilations and noticed an astonishing series of figures under the caption "Prospective Calling." Almost forty per cent. of the June graduates were put down for law, about the same number for theology, while only about five per cent. had selected medicine for their future study.

This shows evidently that medicine is not attractive to the college-bred man. In this connection we must consider the following propositions:

1. Medicine does not pay.
2. The study of medicine is not attractive. *a.* The subject is inherently repulsive and uninteresting. *b.* The conduct of medical schools makes medical education repulsive and uncongenial to an educated man.
3. The instructors in colleges and universities do not encourage men to take post-graduate study in medicine.
4. University corporations do not credit work done in medicine and reward it as they do work in other departments.

Let me consider the propositions one by one.

1. Medicine does pay as compared with theology for the average man. The reward comes slowly because there is less opportunity for a physician to distinguish himself and attain an acquaintance and reputation rapidly. But the financial reward of the best men in medicine is about five times as great as in the ministry. The financial reward in medicine all the way down the scale is greater, as evidenced by the number of aspirants for medicine among the uncultured as compared with the number of aspirants from the same class for theology. Figures are not at hand to show the exact income of physicians and theologians, but in any community examples can easily be recalled sustaining these assertions.

We must admit that financially law pays better than medicine to the superior man. But here medicine has an advantage in that constant incentive to the cultivation of the best qualities of character which it affords, while law, more than mercantile or commercial pursuits, tends to undermine the best qualities of man and crystallize the best emotions.

sentiments and aspirations. Still it seems to me medicine pays too well to secure only five or ten per cent. of the annual output of college graduates. We must look elsewhere for the cause of this movement.

2. The study of medicine may be unattractive from two different causes. *a.* It may be inherently unattractive to college-bred men. We may safely assert that this is not the case, but that on the contrary it has combined in it all the attractions of the natural sciences with the personal interest which adds so much to the humanities. Again, by consulting Diagram I it will be noticed that medicine is the most popular profession in the opinion of the graduates of the German universities. A knowledge of the thesis literature of the German universities gives one the opinion that medicine furnishes the ideal field of scientific study.

But if medicine is sought by the educated German and is neglected by the educated American, may it not be the fault of the medical schools themselves? Largely I believe it is. This has happened from many and from widely separated causes. Medical education has not been controlled by educators, but by clinicians. The antique methods of the Revolutionary period prevail in the great majority of medical schools to-day. Even in those medical schools that are most intimately connected with State or private universities, other rules and other methods than those of the literary and technological departments prevail. In the report which furnishes the material for this article, we are astonished to find that in one of our university medical schools the course of lectures is so arranged that each student hears every lecture repeated the second year of his attendance and then passes his examination and graduates. Can any educated man endure this, in this last decade of the nineteenth century! The fact is apparent to any student that medical schools are run for the good and profit if not for the glory of the professors. These men want quick returns and they adapt their instruction to the unevolved mental maws of the students that come in the greatest numbers. Such pap the college-bred man does not relish. To such instruction the university teachers do not recommend men for post-graduate work. To such instruction the American university too often gives its name though withholding its support. Let me omit to speak on propositions 3 and 4.

In conclusion, let me make the following deductions:

1. The average course of study in the United States is still less than three years; *i. e.*, eighteen months.

2. The antiquated method of repetition still prevails in the majority of medical schools.

3. The number of students of medicine is absolutely increasing but (in relation to population) relatively diminishing. The homoeopathic and eclectic schools are hardly holding their own.

4. The education of the average medical student is superior to that of ten years ago, but the ratio of matriculates having degrees in science or art is actually diminishing even in the richest, best located and only endowed medical schools.

5. The medical department is, so far as we know, neglected by every university in the United States, it is farmed out or left to shift for itself on half rations, or in the best instances, treated from an educational standpoint in an exceptional manner.

6. Medicine is neglected by the benevolent and by the State. From the former it has received almost nothing and from the latter not a tithe of what has been lavished on technological schools, and this in spite of the fact that the State and all benevolent institutions have put a heavy task of gratuitous and often compulsory service on the medical profession.

7. The medical schools are wasting their substance by keeping their doors shut half the year, and they are degrading the profession by allowing uneducated men to matriculate and uncultured men to graduate.

8. The laws which allow the diploma to become a license to practice, put the short-term-no requirement schools in a position to dictate to the schools that offer a medical education in place of a degree.

EYE TROUBLES WHICH CONSTITUTE A FREQUENT SOURCE OF HEADACHE, VERTIGO AND NAUSEA, AND OTHER NERVOUS DISORDERS.

Series of four lectures delivered at the Fourth Special Course of the Chicago Polyclinic.

BY F. C. HOTZ, M.D.,
PROFESSOR OF OPHTHALMOLOGY.

FIRST LECTURE—ANOMALIES OF REFRACTION.

It has of late years become more and more generally understood that certain affections of the eye have a far reaching effect upon the nervous system, and are a prolific source of nervous disorders. The clinical evidence now in our possession is so abundant and strong that this causative relation between the eye and certain neuroses can no longer be treated as a mere theory, but must be accepted as a positive fact. As the clear understanding of this relation is of the greatest consequence in the successful management of numerous nervous complaints you are called upon every day to relieve, I thought in looking for a practical subject for these lectures I could not choose any that would interest you as much as the "Ocular Affections which Constitute a Frequent Source of Headache, Vertigo, Nausea, and other Nervous Disorders."

For this purpose I have arranged these ocular troubles into four groups.

1. *The first group* embraces those cases in which the cause of nervous troubles can be traced to an abnormal state of the refraction of the eye.

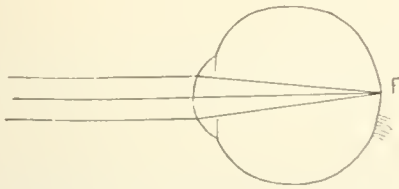
In order to make clear this connection of the nervous system with the refraction of the eye, it will be necessary to devote a few minutes of our time to a consideration of what we call refraction and accommodation.

By *refraction* is meant the optical condition of the eye when in a state of absolute rest; by *accommodation*, the faculty of altering the refraction to suit the varying optical requirements of the eye to see with equal clearness at varying distances.

Refraction is a power the eye has in common with any convex glass lens; it is the power of changing the course of rays of light passing through it in such a manner that eventually they will all come together in one point called focus. The normal eye (Fig. 1) is so constructed that parallel rays of light (*i. e.*, rays coming from a very long distance) are united in a focus (*f*) exactly on the retina; and this state of refraction is called normal, or *emmetropia*. But the refraction departs so often from the emmetropic

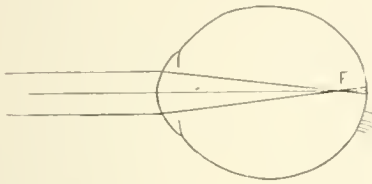
state that if you examine any 100 eyes you will always find the emmetropic eye in the minority; the majority of eyes will show either of the following conditions of abnormal refraction:

FIG 1



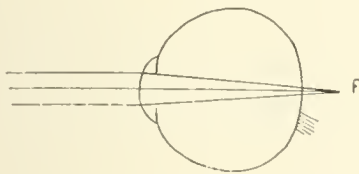
1. *Myopia* (Fig. 2): the rays of light are brought to a focus, (f) before they reach the retina:

FIG 2



2. *Hypermetropia* (Fig. 3): the rays reach the retina before they are focalized:

FIG 3



3. *Astigmatism*: the rays cannot be united in a single focus at all, but the surface of the cornea being differently curved in two opposite directions or meridians (which are perpendicular to each other), there is a marked difference in the refractions of these two meridians, and the rays passing into the eye through the one meridian are brought to a focus sooner than the rays entering through the other meridian. By this peculiar inequality of the corneal meridians, the following kinds of astigmatism are possible:

1. *Simple myopic astigmatism*—refraction in one meridian emmetropic, in the other meridian myopic.

2. *Compound myopic astigmatism*—refraction in both meridians myopic, but the myopia of the one meridian greater than the myopia of the other.

3. *Simple hypermetropic astigmatism*—emmetropia in one and hypermetropia in the other meridian.

4. *Compound hypermetropic astigmatism*—hypermetropia in both meridians; but greater in the one than in the other.

5. *Mixed astigmatism*—myopia in one, and hypermetropia in the other meridian.

The degree of abnormal refraction is determined by the optical value of lenses. If we place a convex lens before a hypermetropic eye, (which as you have learned by Fig. 3, cannot bring parallel rays to a focus on its retina) the rays are made convergent before they enter the eye, and therefore are brought to an earlier focus; thus, convex lenses as it were increase the refractive power of the eye and there-

fore we can find for every hypermetropic eye a convex lens which will increase its refraction just so much that the rays are focalized exactly in the retina. The value of this convex lens represents the amount of refractive power the eye is wanting in order to be emmetropic; in other words it expresses the refractive deficiency or the degree of hypermetropia. In a similar manner we can find for every myopic eye a concave lens which makes the rays just divergent enough before their entrance into the eye, that they will now be focalized in the retina. The value of this concave lens indicates the amount of refractive power the myopic eye has too much to be emmetropic; or in other words, it indicates the degree of myopia.

In order to have a definite and uniform scale of optical values, oculists have adopted as the unit a lens of one meter focal length, which is called a *dioptry*. A lens which shortens the focal length to half a meter, must of course have twice the refractive power of one dioptry, and therefore is numbered 2 (2 D.), while a lens with a focal length of two meters can be only half as strong a one dioptry, and is called one half dioptry (.50 D.); and now such symbols as M 2 D., or H. 4.50 D., will be no hieroglyphics for you any longer; you will understand them at once to mean: myopia of two dioptries, or hypermetropia of $4\frac{1}{2}$ dioptries.

If you throw the rays of a gas jet through a convex lens upon a cardboard, and slowly move the cardboard away from the lens, you will see a distinct inverted image of the flame appear upon the card when it is removed to a certain distance from the lens. This distance corresponds with the focal length of the convex lens, and if in the experiment the card is brought nearer to or farther away from the lens than the focal distance, the image of the gas flame becomes indistinct. Just as this convex glass lens produces an inverted image upon the card, so do the refractive substances of the eye (cornea, lens and vitreous) produce inverted images of outward objects upon the retina.

If these retinal images are sharp and distinct, we see the objects well; if the images are indistinct, our sight will be blurred. As these retinal images are distinct only when the rays are focalized on the retina, and as this is only done by the emmetropic refraction, the emmetropic eye is the only eye which sees a distant object distinctly by means of its refraction alone. But the clear sight of the emmetropic eye even would be limited to long distances; it would be very imperfect at a short range if it had not the power of accommodation. That an emmetrope can see an object distinctly whether it be 60 feet or 6 inches from his eye; that you can recognize a friend several blocks away, and can read small print, this extensive range of clear vision you owe to the power of accommodation by which the eye is enabled to increase the refractive power just so much as it is necessary for the production of a sharp retinal image of the nearer object.

These variations of the refraction are produced by alterations of the convexity of the crystalline lens through the action of the ciliary muscle; when its fibres are contracted, the lens becomes more convex and thereby more refractive; hence, whenever in the interest of distinct vision an increase of the refraction is needed, this demand is met by a corresponding contraction of the ciliary muscle. In the emme-

tropic eye; this action of the ciliary muscle is needed for near vision only, because as you have seen, distant vision is perfect under the effect of the natural state of the refraction.

The myope also uses his accommodation in near vision only, because his distant vision cannot be improved by any effort of accommodation.

In the emmetropic and myopic eyes, therefore, the ciliary muscles are constantly changing between contraction and relaxation, and can perform with ease and regularity the work imposed upon them by the acts of vision.

But we find different conditions in a large number of hypermetropic and astigmatic eyes. I have shown you that the hypermetropic eye needs the assistance of a convex lens to focalize parallel rays of light on the retina. Now whether a convex lens be placed *before* the hypermetropic eye or whether the same refractive value of such lens be added to the crystalline lens *in* the eye by an effort of accommodation—the optical effect would be the same; in either case the defect of refraction would be removed; the eye would be put in the condition of an emmetropic eye and have clear distant vision. Many hypermetropes enjoy this perfect vision, because they succeed very well in correcting their refractive error by the efforts of accommodation. And in astigmatic eyes it is also possible within certain limits, to overcome the abnormal refraction by special efforts on the part of the ciliary muscle.

Every hypermetrope and every astigmatic person who can see with his unaided eye as clearly as an emmetrope, enjoys this good vision at the expense of the ciliary muscles; they are working at a high tension all day long. But this incessant tension of the ciliary muscles can be maintained only by the expenditure of a large amount of nerve energy; and if the nerve force is consumed quicker than it can be replenished, this abnormal wear and tear will eventually cause an exhausted and irritable state of the nervous system, which manifests itself in various ways in different persons. The most prominent among the nervous symptoms induced by the strained efforts of accommodation, are severe pain in the forehead, or occiput, typical attacks of migraine, vertigo, nausea, vomiting, a sense of weariness coming over the person after a shorter or longer use of the eyes.

In many instances patients connect their nervous trouble with the eyes, because it always begins with a dull pain or a strained feeling over the eyes; or because they cannot read or write without getting a violent headache; but in a number of cases the patient does not connect his headache with his eyes because he can see apparently as well as any body, and claims he can read without feeling any discomfort in his eyes. Such patients think their eyes are perfect, and probably they are inclined to laugh at your suggestions to have their eyes examined, because you suspect the eyes to be the cause of the frequent headaches you have tried in vain to relieve by medical treatment. Among the last hundred refraction cases examined in my office, 46 patients mentioned headache as their chief complaint, and as the main reason for having their eyes examined. Five of those 46 patients had hypermetropia, 7 myopic astigm., and 34 hypermetropic astigmatism. That the hypermetropic astigmatism is so predominant among those cases will not surprise you if you remember that this is just the refractive error which

embarrasses the vision the most, and causes the eyes to make the greatest effort for its correction.

And here I wish to emphasize the fact that in many cases the refractive errors are of comparatively small degrees, often detected only after a searching examination. Let me give you a few illustrations: Here is a boy 12 years old, sent to me two months ago because he had more or less headache every day since last fall. He had complained in the same way during the previous winter and spring; but had been entirely free from headache during the vacation. He is a bright healthy boy, and the family physician searched in vain for some palpable cause for those persistent dull headaches. And if the boy was not himself only too eager to go to school, he might, and probably would have been suspected as shamming sickness in order to be excused from school. His vision was apparently perfect ($\frac{20}{20}$), with normal refraction; but after the ciliary muscle had been thoroughly paralyzed, the right eye showed hypermetropic as. of $\frac{1}{2}$ D. and the left eye, hypermetropic astigmatism of only $\frac{1}{4}$ D. The proper glasses for the correction of these small degrees of astigmatism were given for schoolwork, and they have relieved the boy from his school-headache. He has not had any sign of a headache, and has not lost one hour of school since he got his spectacles.

Here is another striking example: In January a gentleman, 36 years of age, a book-keeper, healthy, temperate and very regular in all his habits, called to have his eyes examined. As a boy, he was often taken out of school on account of his eyes; and the past 18 years (*i.e.*, since he began book-keeping) he had been troubled by occasional attacks of headache (starting over the eyes and going all around the head) and vertigo. These attacks gradually became more frequent, and lately he was often obliged to quit work at noon on account of severe headache and dizziness. The examination revealed $\frac{1}{2}$ D. of hypermetropic astigmatism in each eye. He got the correcting glasses, and he reports now he has been attending to his office work every day from morning till night, and has not felt the faintest indication of headache or vertigo.

When for the first time you were told that headaches, nervous dyspepsia, etc., could be cured by a pair of spectacles, you probably had your serious doubts of the veracity of the person who told you this story: for you could not very well conceive how a pair of glasses should in any way influence the nervous system. And you were right; the glasses have no direct influence on the nervous system. The glasses only correct the error of refraction, that is to say, they put the eye in the condition of the emmetropic eye, and thereby relieve the ciliary muscle of the necessity of excessive work. Take for instance hypermetropia of 2 dioptries: to see well this eye has to increase the refractive power of its crystalline lens by 2 dioptries through the action of the ciliary muscle; and *this perpetual tension of the ciliary muscle is the connecting link by which the hypermetropia reaches the nervous system*. Now if we place the 2 dioptries of needed increase of refraction before the eye in the shape of convex glasses, the deficiency in refractive power is mended by them as well as the tension of the ciliary muscle did it before; and the hypermetropia corrected and its disturbing effect upon vision removed, there is no more need for the continuous efforts of accommodation. You now un-

derstand the *modus operandi*: the glasses relieve the muscular tension and, this muscle strain being the source of the nervous disturbances, the glasses in eliminating the disturbing cause indirectly relieve the nervous system.

Whether an error of refraction will cause any nervous disturbance, and how violent symptoms it will produce, does not depend on the degree of refractive anomaly, but on the condition of the nervous system. It is a great mistake to think severe nervous symptoms cannot be produced by small refractive errors, because their correction by accommodative efforts requires only a proportionately slight strain of the ciliary muscles—on the contrary, as I have said before, in the majority of these cases we find comparatively small degrees of refractive errors, especially often slight degrees of hyperopic astigmatism. For these slight anomalies can be corrected by an amount of muscular tension which the ciliary muscles can easily afford to continue without getting quickly exhausted, and under these circumstances the eye will make this special effort to correct the abnormal refraction in the interest of clear vision. But if the refraction departs much from emmetropia; if, for instance, the degree of hypermetropia is so great that its correction would require nearly all the available power of accommodation, you understand that the ciliary muscles could not meet this demand but for a few minutes; it would quickly be exhausted; its tension would be relaxed, and the sight grow dim in proportion to the degree of the existing ametropia. The correction of these higher degrees of refractive errors being impossible by a reasonable and continued effort of accommodation, the eye gives up the attempt; and therefore these patients do not enjoy very clear distant vision, but on the other hand do not suffer from the secondary effects of the eye strain. This is one reason why not every hypermetrope or astigmatic person exhibits symptoms of nervous disturbance. But you may also meet two persons showing the same degree of astigmatism; but while the one is suffering severely from the effects of the ciliary muscle strain upon the nervous system, the other is perfectly unconscious of straining his ciliary muscles. This fact does not argue against the existence of the relationship between eye-strain and nervous disturbances; but it only shows that one person can endure an amount of wear and tear of the nerve forces, which the other person cannot. The nervous organization of no two persons is alike; the reserve force is not dealt out to all with the same measure; one person has very little of it; another person is endowed very liberally with it; and it is this difference in the reserve nervous force which explains that the same cause which in one person will raise a tremendous nerve storm, will produce but the faintest ripple of disturbance in the nervous system of another person.

AUDIBLE NERVE CURRENTS.—Dr. Wedensky, of St. Petersburg, at the recent physiological congress held in Liège, contributed a series of telephonic demonstrations of the currents of action in nerves.

The Alabama State medical examining board rejects forty-one and sixteen one-hundredths per cent. of candidates who apply for a license.

SOCIETY PROCEEDINGS.

American Electro-Therapeutic Association.

Second Annual Meeting, held in New York, October 4, 5 and 6, 1892.

WILLIAM J. MORTON, M.D., PRESIDENT.

FIRST DAY, OCTOBER 4—MORNING SESSION.

The Association was called to order in the New York Academy of Medicine, by the President, at 10:30 A.M. The first order of business was the election of new members.

LIST OF NEW MEMBERS.

Dr. Floyd B. Crego, Detroit, Mich.
 Dr. H. H. Hahn, Youngstown, O.
 Dr. A. G. Henry, Courtland, N. Y.
 Dr. Thos. W. Poole Lindsay, Ontario, Can.
 Dr. W. J. Herdman, Ann Arbor, Mich.
 Dr. D. S. Campbell, 9 Washington Ave., Detroit, Mich.
 Dr. Emil Heuel, 352 Willis Ave., New York, N. Y.
 Dr. Wm. Davis, Omaha, Neb.
 Dr. J. T. Harvey, Boston, Mass.
 Dr. C. W. Martin, Topeka, Kan.
 Dr. E. B. Sangree, 744 S. Fifteenth St., Philadelphia, Pa.
 Dr. G. M. Hammond, 58 W. Forty-fifth St., New York, N. Y.
 Dr. Robert L. Watkins, 320 W. 145th St., New York, N. Y.
 Dr. Lucy M. Hall Brown, 134 Montague St., Brooklyn, N. Y.
 Dr. Chas. R. Dickson, 263 Victoria St., Toronto, Ontario, Can.
 Dr. Howard Smith, Surgeon U. S. N. (Retired).
 Dr. F. Schayoir, S. Atlantic St., Stanford, Conn.
 Dr. Ernest Wende, 174 Franklin St., Buffalo, N. Y.
 Dr. O. S. Phelps, 143 W. 131st St., New York, N. Y.
 Dr. S. T. Anderson, Bloomington, Ill.
 Dr. Spencer M. Free, Dubois, Pa.
 Dr. F. Semeleder, Caille Sur I, No. 1018, Mexico, Mex.
 Dr. J. Mount Bleyer, 118 E. Sixteenth St., New York, N. Y.
 Dr. Willis E. Ford, 266 Geneva St., Utica, N. Y.
 Dr. G. E. Percy, 9 Benevolent St., Providence, R. I.
 Dr. D. J. Neylan, 172 Hope St., Bristol, R. I.
 Dr. F. B. Wallace, Boston, Mass.
 Dr. W. T. Bishop, Harrisburg, Pa.
 Dr. Halford Walker, 56 Isabella St., Toronto, Ontario, Can.
 Honorary Fellow—Dr. Bruce Clark, M.A., M.B., F.R.C.S., 46 Harley St., Cavendish Square West, London, Eng.

President William James Morton, M.D., read his address on

ELECTRICITY AND MEDICAL ART AND SCIENCE.

Fellow Members of the American Electro-Therapeutic Association:—It falls to my fortunate lot to have the honor and the privilege of declaring this, the second annual meeting of the American Electro-Therapeutic Association, formally open.

In accordance with precedent, a few words are, I believe, expected from your presiding officer at this stage of our proceedings.

I might content myself with selecting some special subject, but it seems to me that our programme is already richly laden with these; moreover I divine that there are thoughts of a more general scope in the minds of all of us present who have watched the steady growth of this young organization and who have at heart its welfare. It is to some of these thoughts that I will attempt to give expression—how inadequately, no one is more conscious of than myself—under the general heading of Electricity and Medical Art and Science.

From more than one point of view this assemblage of medical practitioners especially interested in the applica-

tion of electricity in medicine is an unusual event. Electro-therapy has too long, hung, so to speak, on the outskirts of medicine. Never has a nobler agency for cure been more ignobly treated. Seldom has a branch of science which requires man's highest intelligence to comprehend been so sedulously relegated by professional neglect to the hands of those least gifted by mental qualifications or by integrity of character to pursue it. I do not speak too strongly when I say that with exceptions only the more brilliant for their isolation, electro-therapy has been too long left to the designing, the ignorant and the incompetent. The reasons for this state of affairs are manifest; they are inherent to the nature of the subject and to the nature of the medical profession. Among some of the more obvious of these reasons are:

1. The difficulty of comprehending the agency itself.
2. Our inadequate knowledge of the nature of disease.
3. A traditional adherence to medicines and drugs as remedies, to the exclusion of natural agencies.
4. A skepticism as to the value of all strictly therapeutic measures—a consequent neglect of such measures and an accompanying perversion of the function of the physician from the art of healing to that of scientific explorer.
5. The natural contempt felt for the ignorant methods of the class of men (generally not physicians) who extensively treated disease by electricity.
6. The stupidity and ignorance of the public who buy electric nostrums, think that electricity is the vital principle itself, and regard it as the great "cure-all."
7. The unfortunate appellation, for a physician, of the term "electrician" with the idea that he is a mere administrator and consequently a subordinate. It is safe to say, to-day, that those who use electricity as a means of cure would repel the title as having no special application to themselves. They use not alone electricity but also all measures that seem applicable; they are in short physicians.

These reasons for the present position of electricity are too obvious to require discussion. Such of them as relate to the nature of the agent and to the nature of disease only incite us to profounder study, while such as refer to the relations of electricity to the medical profession will disappear with the higher education of the profession and with a corresponding purging of electro-therapy from mystery and humbuggery by those whose labors are undertaken in a purely scientific spirit.

And now a word as to where we stand to-day—a glance as it were, and that a brief one, at the evolution, so to speak, of electro-therapy.

The single observation of the workman who noticed twenty years ago that the dynamo machine was reversible into the motor has wrought a wondrous change in the relations of electricity to the affairs of mankind—a change which naturally worked itself out in commercial and industrial directions where self-interest and gain were at stake and where capital was available. As a result there has sprung up a new class of experts—the electrical engineers—self-taught and acquiring their science as the need arose in the first instance, and now scholastically trained.

Always in advance of them the new science sprang into being; its demands strained their highest intelligence and highest energies. Electricity had emerged from its thrall-dom; had cast aside the pedagogic flummery of the classroom and the text-book, and had become a part of warring, hard and practical life. A giant had arisen from his cradle; his followers thronged after him and multiplied.

Electricity had revolutionized physics when it made the conception of the identity of light and itself the only tenable one, had revolutionized chemistry when Faraday established his "voltametric law" and law of electro-chemical

equivalence. To-day it has revolutionized the arts, communication and transportation, and the period has just arrived when its influence is beginning to be felt in medicine.

Partially satiated with his conquests over inanimate wires and iron, the electrical engineer is already turning his attention to the action of electricity upon living things—is invading the realm of biology and medicine, and is just to that degree a help to the medical man.

On the other hand the medical man is turning to the physics of electricity and acquiring the lore of the electrical engineer—a happy direction for both and a happy combination for the welfare of electro-therapy. Medicine welcomes the electrical expert; we welcome his presence among us to-day.

It is this great stride of electricity into the other affairs of life that has again forced it into prominence in medicine. When first it invaded medicine it was under false colors of identity with the "vital principle" and "nervous force;" its empirical results were registered from a false point of view. To-day an exact science knocks at the doors of medicine—an inexact science—and demands a hearing. On the one hand is living protoplasm, differing only from dead protoplasm in that it exercises chemical affinities by the inexplicable law of "life;" on the other, a rate of motion capable of affecting gross substance, living as well as dead, and of exhibiting in it the phenomena we term electric. Can we hesitate to believe that it is a great study and worthy of our best thought to ascertain what is the effect of this manifestation of energy called electric and electricity upon living human tissue, in health and in disease? It is this pursuit which has brought us together to-day, and under advantages which our predecessors, even in recent years, were infinitely far from possessing.

Not far distant we may catch the gleam of a new electro-therapeutics arising in the wake of the new electrical science. It requires but little prophetic spirit to watch its growth, founded upon the exact physics of electricity, upon biological study, upon an ever increasingly exact pathology and upon rigid clinical observation.

Electricity is a science, born new every day, and its votaries daily form a new school. The observation of yesterday put in practice today, shelves a hundred well used tomes and saves as many and more lives.

In the onward march of measures for the relief and cure of crippled and wounded humanity I see electro-therapeutics struggling with more and more powerful pace to the vanguard.

You ask—the skeptic asks for the basis of the faith that is in us. It consists broadly: 1. in the known, exact, and remarkable power of the agency itself. Electricity, as exhibited in the familiar physical phenomena of heating, lighting, chemical and mechanical effects, and 2, in its known, exact and remarkable actions upon living tissue.

There are positive pillars of fact upon which we build our faith; among these are,

1. *Excitation of living protoplasm:* Electricity causes protoplasm, animal and vegetable, to contract or otherwise exhibit its characteristic functional excitability. Both nerve and muscle tissue respond to the electric stimulus, dependently and independently. The parts of the human body beneath the skin can be excited in no other manner in a corresponding degree.

(To be continued.)

DOCTOR OF MEDICAL SCIENCES is a new medical degree proposed for establishment in France by the French Minister of Public Instruction. This title will be superior to the ordinary M.D.

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This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, JANUARY 14, 1893.

THE PARASITE OF CARCINOMA.

During the last few years a whole literature has come into existence on the alleged parasite of carcinoma. In every laboratory this obscure branch of pathological histology has been studied with zeal and persistence. COHNHEIM's theory that tumors are due to exaggerated growth of primary remnants of the embryonal folds, gone astray in various parts of the body, has been severely criticised by the enthusiastic believers in the parasitic origin of carcinoma; it has been characterized as purely speculative, as founded only upon probability. It has been shown that embryonal folds exist in all multi-cellular organisms and that consequently invertebrates, theoretically considered, would be just as much liable to various forms of tumors as the higher animals, but such a thing as a carcinoma has never been described in the inferior animals up to the present time although they are very liable to parasitic tumors of various kinds. COHNHEIM stated that carcinoma is not contagious and this statement still holds good; but the opponents of the embryonal misplacement theory are not slow to point out that many diseases, proven absolutely to be of infectious and parasitic origin, are not in any sense contagious. The question continually forced to the front by the bio-pathologists consequently reads: Is it not possible that in man and the higher animals malignant neoplasms are of parasitic origin just as in the lower animal scale where all tumors are parasitic? Many authoritative scientists believe that this question has already been answered in the affirmative by the actual demonstration of cancer organisms. Others again, equally prominent, believe that Cohnheim's theory is for the present the only acceptable, and probably also the only true, theory. Then again, many pathologists have placed themselves in an attitude of critical expectancy, ready to give every result of continued

investigation fair and unprejudiced consideration refusing, however, at the present to take any positive stand on the question. The solution of this problem appears to hinge largely upon the interpretation of the various bodies found by means of recently improved technique in the interior of carcinomatous cells. These bodies have been variously interpreted: Some regarding them to be, wholly or partly, as VIRCHOW did in 1851, the products of endogenous cell division, others as dead red corpuscles, or as dead leucocytes, or as due to the invagination of one cell into another, or to degenerative changes of various kinds in the protoplasm and nuclei of the carcinoma cells. NOEGGERATH states that he has been able to show that all the mysterious bodies found in carcinomas could be traced to pathological alterations in the nuclei. Recent technical modifications resulted in such marked differentiation of the cell and its nucleus from the inclusion so-called that, according to many investigators, doubt could no longer be entertained as to the fact that the included mass has the structure of a true cell presenting no appearance suggestive of degeneration either of the protoplasm or of the nucleus of the epithelial cell proper. Thus PUFFER and WALKER following in the foot-steps of SJÖBRING, FOÁ, SOUDAKEWITCH and others employed the BIONDI-EHRICH triple stain and found the nucleus of the carcinoma cell to stain green, the protoplasm orange-red, while the nucleus of the parasite stained red and its protoplasm light blue, the resulting picture being so characteristic that the inclusions were unhesitatingly pronounced to be true parasites. METSCHNIKOFF in a recent and interesting argument entitled: "Remarks on Carcinomata and Coccidia" (*Revue Générale Sciences Pures et Appliquées*) states it as his opinion that these so called parasites have the greatest analogy with coccidia; he compares carcinoma with coccidiosis, as seen in the rabbit's liver, and finds many points of great and striking similarity between the two diseases. Coccidiosis is an infectious, parasitic disease, not contagious, the lesion consisting of nodules of varying size, composed of proliferating biliary ducts whose epithelial cells contain the coccidia, voluminous sporozoic organisms concerning whose role in this disease there is now no longer any doubt. Like coccidiosis carcinoma is characterized by epithelial cell proliferation; like coccidiosis carcinoma is not contagious; and finally, METSCHNIKOFF concludes as already stated that some of the peculiar bodies demonstrated in carcinoma cells by recent investigation present the closest resemblance to coccidia and this conclusion he regards as sufficiently reliable to serve as the starting point for new researches. VITALIS MUELLER (*Virchow's Archiv.*), on the other hand, suggests that these coccidioid parasites are but the products of indirect nuclear fragmentation in dropsical carcinoma-

tous cells; he was not able to find any karyomitotic figures in the nucleus of the alleged parasite but he did find the nuclei in the epithelial cells containing this parasite undergoing indirect fragmentation. Unanimity of interpretation of these interesting appearances is consequently not yet achieved, but it can, without much fear of contradiction, be stated that the concensus of opinion of a very large number of scientists is to regard the recent bodies referred to as parasitic in nature. The beginning already made in the microbic study of carcinoma is certainly encouraging, but it is quite evident that part of the investigation must be conducted along new lines in order to completely solve this deeply obscure but important problem regarding the etiology of carcinoma.

THE COMING MEETING AND ITS WORK.

The superior character of the papers which have appeared in *THE JOURNAL* has been very gratifying to both the managers and members of the Association. It furnishes the strongest possible proof of our oft repeated statements, that to raise the character and tone of *THE JOURNAL*, the members must prepare and read better papers. The officers of each Section must exercise care and discrimination in the selection of such papers. The old method of gathering every paper offered, read personally or by title, and sending them indiscriminately to the editor for publication, making *THE JOURNAL* a practical dumping ground, is perilous to any publication, no matter who manages it. Happily this is rapidly passing away, and although many papers are yet received by the editor, from the Section officers, that are not creditable to the authors or the Association, the number is growing less every year. This is true in the British Medical Association journal. Recently some severe complaints have been made and questions asked why carelessly written, elementary papers of no value to science should fill up the paper? The editor calls on the Section secretaries to cull out and send abstracts of such papers if worth it, and announces his willingness to discriminate if sustained by vote of the Association.

Our Association is far more tractable and inclined to adapt itself to new conditions and demands than our foreign brothers. Hence both the Association and its Journal should be among the most advanced of scientific workers. This can only be accomplished by hard, exact work; members who expect to read papers at the coming meeting, should exercise the same painstaking care they would in the most delicate surgical operations. Every part of the paper should be most carefully considered and studied, and every theory and conclusion worked out as exactly as that of a brief to the consideration of a group of judges. Writers and readers of papers before the

Associations often make the fatal mistake, that their experience and personal reputation will carry conviction above all faults of facts and methods of expression. To their admirers this may be true, but every year the circle of sharp critical readers is increasing; critics who are discerning and unsparing in their judgment, and who form clear conceptions on many topics that they are not personally familiar with. Foreign critics complain that American writers are careless in expression, and hasty in conclusions, and fall into the weakness of explaining minutely, what is not understood only in the most general way. This critical readers of *THE JOURNAL* see illustrated in many ways. The remedy for this is more time and study to the papers that are to be presented. Readers should remember that they are addressing a large unknown audience, of both this and the generations to come. If they have anything of value to say, it will be remembered, and be heard far down in the coming century. Medical science is awakening from its long sleep of theory and formalism. It has become aggressive, imperious and exacting, and demands the clearest, best sustained facts above all generalities. Any physician from college centers or lonely country practice, who has new observations and facts of science, is called to contribute them. As a duty they owe to others, such facts should be carefully studied and presented in the briefest possible way compatible with clearness. It should be assumed that the audience understands all the elementary principles bearing on such truths, and that the varied theories held by others pro and con relating to this topic are of little or no interest. The audience of the Association and its Journal have neither the time or space to follow exhaustively any subject of science. Its purpose is to keep its members in sympathy and touch with all advances of science, and stimulate pioneer work, pointing out new lines and avenues into the unknown. The few months to come is little enough time to prepare papers for the next meeting. If our friends and well wishers, and also captions critics, will spend their energies on papers which will be read, *THE JOURNAL* will be raised immeasurably and be less open to fault-finding.

A united effort along this line will soon place *THE JOURNAL* among the great periodicals of the world. This is not extravagance, for the material and the scientific men are here, to lead in the very front ranks of science. The first great want or need, is mobilization and concentration of study and effort, sifting out the facts and presenting them in the most available form, to stimulate and rouse others to correct or confirm them. This *JOURNAL* appeals to all its readers, and to every member who expects to present a paper at the coming meeting, to aid in securing a higher standard in the study and methods of presentation of the facts.

THE NEED OF NATIONAL QUARANTINE.—John S. Billings, surgeon U. S. A., writing from Washington, says:

"In reply I would say, in my opinion a system of national quarantine or maritime sanitary inspection can be organized and enforced in such a manner as to afford greater security to the country and cause less restrictions upon traffic and travel than result from the present State and municipal systems. Such a national system would cost more than the present systems, because it would have larger and better plants and better paid officials, but the cost, being defrayed from the national Treasury, would be much more fairly distributed."

Economy, in the face of cholera even now existent in Hamburg, may be said to occupy a "very secondary place" in the minds of the prudent citizen as well as of the experienced sanitarian.—*Baltimore Medical Journal*.

DOMESTIC CORRESPONDENCE.

Revision of the Code of Ethics.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Dear Sir:—In THE JOURNAL of December 31 1892, "INQUIRER" asks if the writer has read the editorial of the *Medical News* of September 27, 1892.

1. The writer has read carefully the article in question, but its perusal has not convinced him that it would be wise to make any alteration in the Code; on the contrary this editorial would have had the effect of convincing him of the wisdom of leaving the Code intact had he entertained any doubts on that score, for the editor of a journal of the high standing of the *Medical News* is doubtless sure of his facts when he declares the general sense of the profession to be that the Code is an excellent guide for professional conduct, which is the same as saying that the majority of physicians are against any change.

2. The following is precisely the language of a part of the first paragraph of the editorial: "We think the general sense of the profession would answer that while the Code, as it now stands, is an excellent guide for professional conduct, it is wise to subject it to revision for two reasons: 1, it contains much that is unnecessary and useless; and 2, a respectable number of members of the profession demands its revision and is dissatisfied with certain of its provisions." If it is the general sense of the profession that the Code, as it stands, is an excellent guide for professional conduct, surely there is no need of change, for what excels cannot be bettered, and if the Code is excellent it cannot contain anything unnecessary or useless. The Code being an excellent guide for professional conduct, the demand for its alteration does not seem just, and dissatisfaction with any of its provisions is not consistent with the acknowledgment of its excellence. It would therefore be gracious for the minority to abide by the general sense of the profession and allow the Code to stand as it is, for it wrongs no man. The two reasons given in favor of revision do not appear to be valid, unless the language of the editorial has been wrongly interpreted.

3. In THE JOURNAL of December 24, 1892, is a letter by "Iowa," who thinks "it is safe to affirm that nine-tenths of the regular profession heartily agree with the views stated by 'CONSERVATIVE' in his letter to THE JOURNAL of the 10th inst., as to any change in the Code. . . ." The tenor of "Iowa's" letter indicates that he is well informed on the subject he discusses, and he will doubtless gratify many readers by again giving his views, but more in detail, respecting the inadvisability of making changes in the Code.

4. "INQUIRER" seems to imply that the style of the Code

bears some resemblance to the exuberant manner of some of the writers of the last two centuries, but this is scarcely just, for even the Johnsonian method is less objectionable than the loose style of Cervantes with its tiresome repetition of adjectives and its many other tautologies. Percival, who wrote after the admirable style of Addison, used less adjectives and adverbs, and the committee of 1847 improved upon the style of Percival. But is there any writing in which some literary blemishes may not be detected? Are not all mortals erring in many ways? If this were not the case there would be no necessity for laws of any kind. Whatever may be the blemishes of the Code, all its teachings are so salutary that not a word in any of its phrases should be expunged.

5. "INQUIRER" quotes from four of the writer's reasons for non-revision stated in THE JOURNAL of December 10, 1892, as though he thinks these reasons are stated too generally. Perhaps he is right. Perhaps the writer was wrong in taking it for granted that the readers of THE JOURNAL are all thoroughly well acquainted with the Code in all its details. In any event a brief sketch of the origin, lofty aims, extent and arrangement of the Code may not be out of season.

6. It is well known that the framers of the American Code modeled it upon the "MEDICAL ETHICS" prepared by Dr. Thomas Percival of Manchester, for the guidance of physicians and surgeons, and particularly for a son who was about to enter the profession but who died before the completion of the work. Certain parts of the American Code are especially designed for the information of beginners, while other parts are for the guidance of physicians throughout their professional career, and the remainder for patients and the general public. All these parts are essential to the consistency of the Code in its entirety, and not a part can be altered or expunged without seriously mutilating the document. The committee of 1847, of which Dr. Isaac Hays was chairman, appended a note to their report to the effect that "on examining a great number of codes of ethics adopted by different societies in the United States, it was found that they were all based upon that by Dr. Percival, and that the phrases of this writer were preserved to a considerable extent in all of them. Believing that language so often examined and adopted must possess the greatest of merits . . . clearness and precision . . . the committee . . . have carefully preserved the words of Dr. Percival whenever they convey the precepts it is wished to inculcate." Dr. Percival dedicated his work, published in 1803, to Sir George Baker and to another son who was then a student of medicine, and said, in this dedication, that in the composition of the Code his thoughts had been directed to his deceased son "with the tenderest impulse of paternal love, and not a single moral rule was framed without a secret view to his designation, and an anxious wish that it might influence his future conduct." In this same dedication Dr. Percival says: "The relations in which a physician stands to his patients, to his brethren, and to the public, are complicated and multifarious, involving much knowledge of human nature and extensive moral duties. The study of professional ethics, therefore, cannot fail to invigorate and enlarge your understanding, while the observance of the duties which they enjoin will soften your manners, expand your affections, and form you to that propriety and dignity of conduct which are essential to the character of a gentleman."

7. It is not unlikely that they who now wish to expunge the first chapter of the American Code, will soon change their opinion after reading carefully the able commentaries of the late Dr. Austin Flint upon the Code. This precious little volume, bearing the title of "MEDICAL ETHICS AND

ENRIQUEZ," published by the Appletons, of New York, should be diligently studied by every physician in the land, and should also be in the hands of the laity, for it concerns all men. In it every article of the Code is embodied and is eloquently commented upon, and the best reasons are given for its composition. Those who study these commentaries cannot fail to be impressed with the fact that there is no necessity to curtail the Code, that every word it contains is in its proper place, that the language is not redundant, and that the moral principles it inculcates are of the most exalted character.

8. The absence from the Code of high sounding words, of attempts at embellishment, or of what is often called fine writing, is remarkable. The document is characterized by the skilful and judicious use of such parts of speech as exactly convey the desired ideas, by the most precise phraseology, by great lucidity of statement, by the soundest moral principles, and by an excellent arrangement into chapters, articles, sections and subsections. It contains 5,240 words or thereabouts, and can be read in an hour and a half. Percival's code contains about 20,000 words and has not generally been considered too long.

9. The American Code, as shown above, is a short abstract of Percival's code, but the editorial of the *Medical News* of September 17 offers a proportionately shorter abstract of this abstract, but the seventeen sections, containing in all about 889 words, suggested in this editorial, do not constitute a sufficient amplification of the golden maxim, be just—the fundamental principle of the ethics of all the relations of men with their fellows.

10. The writer of the editorial in question may, for a time, have lost sight of the fact that the Code is intended as well for the instruction of beginners in medicine as for the guidance of physicians of experience, for patients, and for the general public. His ground that the public "has nothing to do with acts on the part of physicians that render them amenable to penal law" is not tenable. Laws are framed by individuals, but are never operative until they have the sanction of the public or of those members of the public delegated to examine and enact them. The more the public knows of the Code of medical morals in its various relations, the better it will be for that public and for the profession.

11. The cry of want of conciseness in the Code is as unfounded as are all the other objections. Conciseness in the Code need not consist merely in economy of words, but in clearness and precision of statement, in absolute freedom from ambiguity, and in the fullest and most unmistakable directions without superfluous phrases. All these qualities exist in the Code as it now stands.

12. The *News* editorial says: "The Code need not, and should not, include exhortations and maxims that go without saying." If all men were just these exhortations would be unnecessary. Be just, should "go without saying," but it does not. Men are unjust often from mere thoughtlessness, and need reminding to be just and sometimes how to be just. Hence the Code, which is a commentary upon the maxims that "go without saying." No "clear-cut" set of dry short rules will answer. The perusal of the Code as it now stands gives pleasure as well as instruction, because the document is an attractive literary production of high order.

13. The American Code is an excellent amplification of the golden maxim, and is so well arranged as to be time-saving while it gives the fullest information to the different classes for which it was framed, and tells young physicians under what circumstances they may fail to be just to themselves and to others.

14. When the revision committee examine the Code critically in reference to its adaptation to the several classes of

persons for which it is intended, they may not find in it superfluous articles or redundant language.

A CONSERVATIVE MEMBER.

The Regulation of Quacks by Local Legislation.

MANSFIELD, O.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Sir:—Since the announcement of the passage of the ordinance in this city entitled "The Registering of Physicians, Midwives and Pharmacists," I have been flooded with letters from all parts of the country asking for a copy of the ordinance which I have been unable to supply, and consequently take this method of reaching the profession at the earliest possible moment with a copy of the ordinance, which is as follows:

Registering of Physicians, Midwives and Pharmacists, in the City of Mansfield, O.—It shall be the duty of every physician, midwife and pharmacist practicing in the City of Mansfield, Ohio, to register in a suitable book prepared therefor by the Health Officer; which register shall contain the name, the street address, the college at which said physician, midwife and pharmacist graduated, and date of said graduation; and further, that on and after the adoption of this ordinance, no person shall be permitted to practice the art of medicine, surgery, midwifery, pharmacy or dentistry, or sell medicine or drugs from house to house, or on the streets, without registering with the Health Officer, and furnishing him, when so required, a sample bottle of the medicine to be sold for analysis; and displaying to him their certificate from the State Board of Pharmacy in the case of druggists, or their diploma of graduation from a recognized chartered medical or dental school in the case of a physician, surgeon, midwife or dentist.

And that such person shall not be eligible to receive a license from any city officer, until he has displayed the above mentioned documents or drugs, as the case may be, to the Health Officer, and received a certificate from him to the proper city officer, who shall then have the privilege of issuing the said person the necessary license, which shall not be for less than \$10 or more than \$50 a day.

And further, that any person violating this ordinance shall be subject to a fine of not less than \$50 or more than \$100 for each offense.

In the selling of drugs, this ordinance is not intended to apply to regularly recognized traveling salesmen who deal directly with the physicians or druggists of the city.

Attested: F. M. REAMY,

City Clerk.

JOHN V. VANNATA,

Pres. City Council.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

I regret exceedingly that your printers changed two letters in the title to my little article in the last issue of THE JOURNAL, making "A Study of the Acquirements of the Average Prospective Medical Student," into "A Study of the Requirements, etc." You will readily see that this makes the title absurd. I am, very respectfully,

BAYARD HOLMES, Sec'y.

Chicago, January 7, 1893.

SELECTIONS.

HEMOLYSIS—In the exhaustive and erudite study of the process of blood destruction or hæmolysis, which was chosen by Dr. Wm. Hunter for his recent lectures in connection with the Grocers' Company Research Scholarship, the proposition that the blood acts in its physiological and pathological relations similarly to other tissues is one which will at the present day be accepted without demur; but, although there is no doubt of the waste and renewal of all tissues and cells, the blood is singularly adapted for observing the method of such changes owing to the special colored element that it contains. It was then mainly an exposition of the destiny of hemoglobin that the lecturer made, and

the facts and arguments which he adduced from observation of normal changes on the one hand, and of abnormal—whether induced experimentally or as the result of morbid action—on the other, were both numerous and sufficient. It would hardly be fair to Dr. Hunter to attempt a critical survey of the elaborate details of his work. He was dealing, as he said, with a comparatively novel subject, and no criticism could rightly be passed by any one who had not traversed the same ground. It may, however, be permitted to indicate a few of the salient points which are to be gathered from his exposition. In the first place, the derivation of bile-pigment from hæmoglobin is unquestioned, and it is to be noted that this conversion is not entirely limited to the liver cells, whither the products of effete red corpuscles are conveyed by leucocytes. For leucocytes and connective tissue cells can also produce pigments identical with bilirubin and biliverdin from hæmoglobin, although in the main the conversion is effected in the liver. The red corpuscles may, however, part with their hæmoglobin under the influence of changes created in the blood plasma, and the coloring matter thus set free may come to be deposited in the spleen, liver and bone marrow. That the portal area of the circulation is the region where this liberation of blood pigment (active hæmolysis) mainly takes place is a view which was, we believe, originally propounded by Dr. Hunter, who has still further elaborated it. He shows that this hæmolysis may occur in health, during digestion, in the spleen and gastro-intestinal capillaries; that it may be effected, in the same area, by the action of toluylendiamine; and that it probably occurs here in pernicious anæmia and malignant jaundice. The resulting free blood pigment is deposited to a large extent in the liver and to a lesser degree in the spleen, and even in the kidney—as evidenced by micro-chemical examination. The subject embraces, however, many other questions than these which we have indicated; and we only regret that Dr. Hunter had no opportunity to gather up the fruits of his labors in a few general propositions.—*The Lancet*.

FILTERED OR BOILED WATER?—M. A. J. Martin, under this title, presents a very carefully studied paper. Recognizing the fact that many filters, so far from separating the bacteria, may even make the water richer in these organisms, this method cannot be recommended. Boiled water has lost its carbonic acid gas, and the salts of lime and magnesia are precipitated; the taste is flat, although on standing in a cool place it reabsorbs the greater portion of the lost gas. Even boiled water ought not to be long preserved. The problem apparently was solved in heating the water without loss of air, cooling it mechanically, and adding oxygen by means of an air-pump; or it can be boiled in closed bottles. Various ingenious apparatus have been devised for boiling water in closed vessels under pressure, and cooling it in the same apparatus. Investigations have shown that the slight differences observed in the chemical composition of the water before and after sterilization have not altered its potability. With a filter, one can drink only the water of which he knows the source; with boiling, one can use any water. Boiling, then, should be the procedure of choice as soon as any suspicion arises, it should be the rule, especially in large cities, during the progress of any epidemic.—*Gazette Hebdomadaire de Médecine et de Chirurgie*, 1892, No. 37, p. 433 (*American Journal of the Medical Sciences*).

CONDITION OF THE BLOOD IN GASTRIC AFFECTIONS.—A considerable amount of uncertainty has hitherto existed in reference to the condition of the blood in connection with gastric affections, especially in ulcer and malignant disease of the stomach, and authors differ greatly in their state-

ments on the subject. Orterspey *Berlin Klin. Wochenschr.* it has made some careful experiments in order to clear up these doubts, and the following are the results he has obtained: In nine cases of ulcer of the stomach the results were very uniform—diminution in the amount of hæmoglobin and in the number of red blood corpuscles, these changes being particularly marked in those patients who had had hæmatemesis. These results of course correspond with the anæmic state so constantly met with in connection with this disease, and all previous investigators have found the same condition. Out of twelve cases of cancer of the stomach, in one the blood was perfectly normal, in eight the number of red discs was diminished, in eleven there was a diminution in the amount of hæmoglobin present, in five there was an increase in the number of leucocytes, whilst in two, although the hæmoglobin was diminished, the red corpuscles were about normal in number. All these changes are neither characteristic of the cancerous cachexia generally nor of cancer of the stomach in particular, as they also occur to a similar degree in the course of many other affections. There is therefore no diagnostic difference in the blood to be noted in the two diseases, ulcer and carcinoma of the stomach. There is, perhaps, more value in the examination of the blood in doubtful cases, when there is uncertainty as to the case being one of malignant disease or chronic catarrh or a neurosis of the stomach, as the last two sometimes lead in extreme cases to the absence of hydrochloric acid in the gastric juice.—*The Lancet*.

BOOK REVIEWS.

INTERNATIONAL CLINICS: A QUARTERLY OF CLINICAL LECTURES ON MEDICINE, NEUROLOGY, PEDIATRICS, SURGERY, GENITO-URINARY SURGERY, GYNECOLOGY, OPHTHALMOLOGY, LARYNGOLOGY, OTOTOLOGY, AND DERMATOLOGY. By Professors and Lecturers in the Leading Medical Colleges of the United States, Great Britain, and Canada: Edited by JOHN M. KEATING, M.D., Colorado Springs, Col., Fellow of the College of Physicians, Philadelphia, etc.; JUDSON DALAND, M.D., Philadelphia, Instructor in Clinical Medicine, and Lecturer on Physical Diagnosis and Symptomatology in the University of Pennsylvania, etc.; J. MITCHELL BRUN, M.D., F.R.C.P., London, England, Physician and Lecturer on Therapeutics at the Charing Cross Hospital, D. W. FINLAY, M.D., F.R.C.P., Aberdeen, Scotland, Professor of Practice of Medicine in the University of Aberdeen, etc. Vol. I. Second Series, 1892. Philadelphia. J. B. Lippincott & Co.

This is a cloth bound book of 363 pages containing clinical lectures by 38 teachers and embracing 56 subjects. The number of authors to each country represented is as follows: United States 27, England 6, Canada 2, Scotland, Ireland and France, 1 each. The three leading cities of our own country furnish the following distribution of writers: Philadelphia, 8, New York 6, Chicago 2, nearly one-half of the whole number of contributors. The subject of general medicine occupies 122 pages, surgery, 60, neurology, 50, genito-urinary and venereal surgery 38, gynecology and obstetrics 37, pediatrics 20, ophthalmology and dermatology each 10, laryngology 9, otology 0. There are seven well executed plates and 33 figures or cuts. The table of contents could be improved by grouping the lectures under appropriate headings corresponding to the sections in which they are found. There is a very complete index.

The first 22 pages are filled by an exceedingly instructive lecture by Dr. J. M. Da Costa, on the pulmonary complications of influenza. The epidemics of this disease have been so flippantly treated by the people, the public press and even by the profession, in many instances, that it is a source of satisfaction to have the subject presented by an able

authority and with the dignity and thoroughness that its importance demands. The histories of six cases are detailed together with the results of quite extensive variations in treatment.

Dr. Arthur Wynne Foot, of Dublin, fills 18 pages with a lecture on Graves' disease. He endorses Sattler's theory that the starting point is in the medulla oblongata, near the origin of the vagus. Exactly one page, out of the 18, is devoted to the general subject of treatment. The practitioner who looks for any advancement, or even anything encouraging, in the management of this affection will be disappointed. It is to be hoped that such antiquated terms as Graves' and Basedow's disease, which have no medical significance in themselves, will soon give place to names of inherent scientific meaning, like ophthalmic goitre, that suggest two of the three prominent symptoms.

There is a short talk by Dr. P. Blaikie Smith, of the Aberdeen Royal Infirmary, on acute intestinal obstruction and peritonitis the result of enteric fever (?). In its ultra-conservatism it presents striking contrasts to the advanced teachings of the American leaders in abdominal surgery, of whom Dr. Senn is a strong type.

Dr. Wm. Henry Porter has entered on a series of lectures on syphilis. The first one is deeply interesting and full of promise.

The paper on ocular symptoms in Bright's disease by Dr. Thos. R. Pooley is one of the greatest practical value to every general practitioner.

Dr. Ohmann-Dumesnil, of St. Louis, contributes one of the most helpful articles in the series, on herpes zoster.

Six pages are devoted to general paresis, by Dr. B. Sachs, of New York. The differential diagnosis of this disease from paranoia and multiple cerebro-spinal syphilis is given. It is to be regretted that this entertaining writer stopped short of a consideration of the management of this disease.

Another excellent article that deserves mention is from the pen of Dr. R. Marcus Gunn, of London, on eye diseases in children. It is misplaced in the section on pediatrics, although there is no essential difference between ocular affections in children and the same disease in adults.

The book is the production of such a large number of authors, and comprises such a varied list of subjects that it is not practicable to give a comprehensive idea of its contents within the reasonable limits of a journal review.

It is sufficient to say that such names as Ashurst, Casselberry, Charcot, Goodell, Loffert, Mundé and Parkes are a guarantee of the worth of the work.

THE CHEMICAL BASIS OF THE ANIMAL BODY. AN APPENDIX TO FOSTER'S TEXT-BOOK OF PHYSIOLOGY. (Sixth Edition.) By A. SHERIDAN LEA, M.A., D.Sc., F.R.S., University Lecturer in Physiology in the University of Cambridge; Fellow of Caius College, Cambridge. New York: MacMillan & Co. 1893. (All rights reserved). Pages 288. Price \$1.75.

This appendix, written upon the same lines as those found in the former editions of Foster's well known book of physiology, has been so enlarged that it now in reality constitutes a distinct treatise on the chemical substances occurring in the animal body; the volume is consequently paged separately from the rest of the text-book and it has an index of its own and it may be regarded as an independent work entirely. The chemical features of the more important of the various substances that occur in the body are briefly considered, such characters only being described as possess physiological interest. The chemistry of the several proteids is first taken up and then follows a section on the enzymes or soluble ferments, the more important of which, such as ptyalin, the amylolytic enzyme of the pancreas, pepsin, fibrin ferment, urea ferment and others are

given a special description. The carbohydrates, fats, the various saline, crystalline and pigment substances found in the tissues, the excretions and secretions of the body are all described from the standpoint of physiological chemistry; as a rule brief but succinct statement is made regarding the practical uses made of many of these substances as, for instance, the preparation of haemin crystals from minute quantities of haemoglobin and methaemoglobin for medico-legal purposes. Extensive references are given throughout the book in the shape of foot-notes; the references to recent work appear exhaustive and complete; at the end of the volume is a list of authorities quoted which, arranged in double columns, occupies nearly eight pages. The publisher's work is well done; there are forty-one black and white figures illustrating the various crystals and the spectra of haemoglobin and its derivatives or combinations. The statement can safely be made that this work on the chemistry of the animal body by Dr. Lea forms an in every way worthy appendix to Foster's standard book; at the same time it may be regarded as independent work of equal merit.

REPORT OF THE SURGEON-GENERAL OF THE ARMY TO THE SECRETARY OF WAR FOR THE FISCAL YEAR ENDING JUNE 30, 1892. Washington: Government Printing Office, 1892.

This report of 126 pages contains the usual amount of statistical material as well as the necessary financial statements. It is interesting to note that the library of the Surgeon-General's office now contains 166 006 publications of all kinds, of which 13 781 were added during the year. Of 77 candidates for medical officers invited to appear before various examining boards only 13 were found qualified to enter the service; there are now eleven vacancies in the medical department. The medical department of the National Guard has received considerable attention from the Surgeon-General's office with the wise view to secure its effective coöperation in time of war. At the end of the report are eleven excellent photographs illustrative of the field equipment now in vogue in the U. S. Army Medical Department.

MISCELLANY.

WANTED.—No. 2, Vol. XIX, of THE JOURNAL.

MASSACHUSETTS has a record as a sterile State. One-fifth of the married women are childless. In Suffolk county the percentage is one-fourth. So says the last census.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from December 31, 1892, to January 6, 1893.

First Lieut. Isaac P. Ware, Asst. Surgeon U. S. A., is assigned to duty at Ft. Sill, Oklahoma Ter., until further orders.
Capt. Adrian S. Polhemus, Asst. Surgeon U. S. A., leave of absence granted for two weeks, on surgeon's certificate of disability, is hereby extended fourteen days from December 30, 1892, on surgeon's certificate of disability.
First Lieut. Frank T. Meriwether, Asst. Surgeon, is relieved from further duty at Ft. Adams, R. I., and assigned to duty at Madison Bks., New York.

PROMOTIONS.

Lieut.-Col. Charles H. Alden, Deputy Surgeon-General U. S. A., to be Asst. Surgeon-General with the rank of Colonel, December 4, 1892, vice Heger, retired.
Major Albert Hartsuff, Surgeon, to be Deputy Surgeon-General with rank of Lieut.-Col., December 4, 1892, vice Alden, promoted.
Capt. Louis M. Maus, Asst. Surgeon, to be Surgeon with the rank of Major, December 4, 1892, vice Hartsuff, promoted.

The Journal of the American Medical Association

VOL. XX.

CHICAGO, JANUARY 21, 1893.

No. 3.

ORIGINAL ARTICLES.

A UNIVERSAL MENTO-DENTAL SPLINT, WITH REPORT OF CASE.

Read in the Section of Dental and Oral Surgery, at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

BY M. H. FLETCHER, M.D., D.D.S.,
OF CINCINNATI, O.

Before showing the splint and reporting the case in question, it may be well to review in some degree splints and bandages for broken lower jaws, and in particular mento-dental splints.

Heath divides appliances for the jaw into two classes, external and internal to the mouth, though he says "it may be necessary to combine the two methods in a few cases."

The simplest and most effective form of external apparatus, and by far the best in a very large majority of cases, is the four-tailed bandage, two of the tails being carried over and tied on top of the head, the other two carried back and tied around the nape of the neck, the part covering the chin oft-times

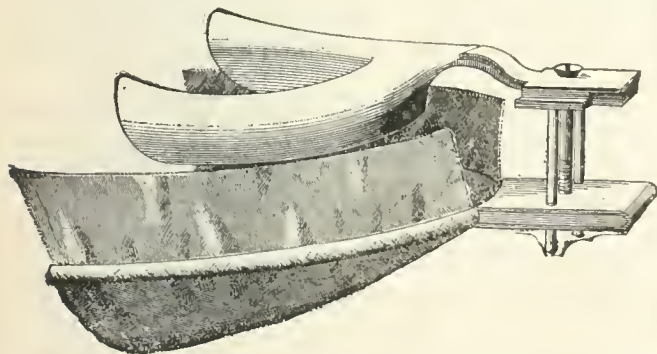


Fig. 1.

being reinforced by pasteboard or sheets of gutta-percha. This method with its variations is no doubt familiar to you all, and when the fracture is simple with no displacement is undoubtedly the best, since it brings the lower teeth in perfect occlusion with their antagonists and holds them in their proper places, as well as puts the fractured ends of the bone in direct apposition, so that when the fracture is healed the jaw is in every way in its proper and normal condition, both for use and appearance. The great objection to this form of apparatus, also in inter-dental splints, is that the patient must be fed on liquid foods. Gross says, "I have known great emaciation to arise from inability of the patient to take appropriate nourishment during the long confinement of the parts." All inter-dental splints, also wires and ligatures, are usually accompanied by external bandages to hold the lower jaw against the splint and against the upper teeth, so that the ina-

bility to take proper nourishment enters largely into the objection to these forms. Dr. E. H. Angle's method is a most excellent one. It consists of buttons or short pipes soldered to bands which are fitted to the appropriate teeth and these bands are tied, wired, or fastened together with rods thrust through the short pipes on the bands and held at one end with a hook on the rod and a nut screwed on to the other end.

This method has the very great objection of complication, for one is certainly safe in saying that hardly any surgeon and very few dentists are prepared to or can fit a band to a tooth firmly enough to withstand much strain, even after long experience. The writer has used Angle's apparatus in a number of cases of regulating, and to fit them firmly to the



Fig. 2.

teeth in the case of a fractured and inflamed jaw would certainly be difficult.

Mento-dental splints or appliances made to grasp the lower jaw, are not new. They are made with one part fitting the crowns of the teeth, the other part the chin and lower border of the jaw.

In 1799 Rutenich, a German surgeon, used such an appliance. Bush in 1822, Houzelot in 1826, Lonsdale in 1867, Hill in 1866, and Moon at a later date. These all used mento-dental splints and all with reasonably good results. These splints have the great advantage of allowing the patient to take nourishment of any kind demanded. They also have the disadvantage of becoming foul after being worn awhile.

Heath remarks: "The great difficulty in using all forms of rigid splints to the jaw is the tendency of the support for the chin to produce abscesses and

ulceration by the pressure upon the sharp border of the bone." These splints do not seem practicable used back of the second molar, but certainly work well with fractures anterior to that point.

Our own experience coincides with what Heath says, for in the case to be reported abscesses made their appearance and the splint was obliged to be removed much earlier than desired on that account. The case resulted reasonably well however, as the model will show, but we have a form of a chin support to present which is designed to do away with the objection spoken of, by using a canvas instead

purpose of making a plaster model with the idea of breaking and resetting it in normal position for the purpose of making an inter-dental splint, as suggested by Heath and others. So we conceived the idea of making a mento-dental splint of two block-tin impression trays such as every dentist has at hand. This splint was worn for five weeks but had to be removed on account of two abscesses forming, one on either side of the chin, where the chin support pressed hardest on the soft tissues. The fracture was comminuted and compounded on the inside under the left bicuspid, the point of the right half and some of the bone being through the flesh at that place. The left lateral and the right alveolar process, which had surrounded it, was taken away with the fingers from the front side, and afterwards some smaller pieces of bone were removed from the wound in the same

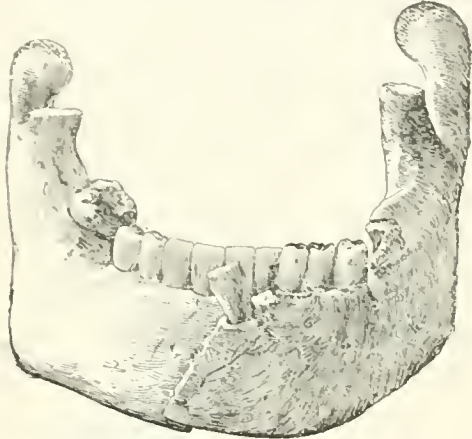


Fig. 3.

of a metal support for the chin. (See Figs. 1 and 2.)

The case we have to report is as follows:

Mr. B. H., age 36, on the 23d of last December was attacked by three highwaymen for purposes of robbery, but being a good fighter he laid out the three robbers and proceeded to his home. After having somewhat subsided from the excitement of the melee he felt a pain in the lower jaw. The next morning he proceeded to a surgeon and found that his jaw was fractured, one of the men having struck him a heavy blow on the chin with his fist. There being no displacement the jaw was dressed in the usual way with a four-tailed bandage and in three weeks he was back to his work again. Mr. H. is a wood-worker in a carriage factory.

On the 15th of January, twenty-six days after the first accident and three days after he had gone to work, Mr. H. with five other workmen was called to test a

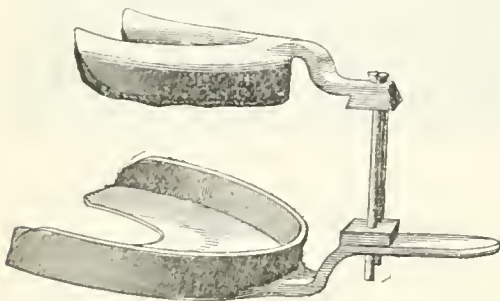


Fig. 4.

new fire ladder, and being the first to mount he was at the top, about thirty feet from the ground, when the ladder broke, and falling, he struck the pavement with terrific force, breaking both arms below the elbow and crushing the jaw in a frightful manner, breaking it through the old fracture. The nearest surgeon was called, who dressed the wounds and sent the men to their respective homes. Mr. H.'s jaw was dressed in the usual manner with a four-tailed bandage. Ten days after, finding the jaw was not doing well and that the fracture had not been reduced, the writer was sent for by the attending surgeons to see what could be done with some different kind of apparatus. After examination it was found that the jaws were so closely set together that it seemed impracticable to take an impression for the

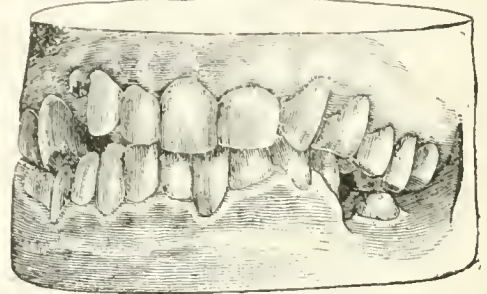


Fig. 5.

place. There was about one quarter of an inch of the bone lost and the left central now stands adjoining the left cuspid. (See Fig. 3.) The remaining incisors were all loose.

Twelve days after the accident, the splint being ready, such plastic adhesions as had formed were broken up, the left lateral and loose pieces of bone removed as stated, the two halves of the bone were reduced and ligated as nearly to their normal position as possible, and while being held firmly in this position by an assistant the impression tray used on top of the lower teeth was filled with plaster of Paris, which had been mixed with a one grain to the ounce solution of bichloride of mercury (for antiseptic purposes), the splint (see Fig. 4) was applied and the parts held firmly in this position with the hands until the plaster had time to set, the screw of the splint being tightened at the same time, and tightened from time to time as necessary.

The fracture was obliquely across the chin from the neck of the left cuspid across the symphysis to a point below the right cuspid, as shown in the plaster model. The result is to be seen in another model made after the fracture had healed. (See Fig. 5.)

[Fig. 1 represents the ideal universal splint, the chin-support being made of a fork of stiff wire, across which is stretched heavy canvas, the margin of canvas being allowed to stand up long enough to pin or sew the head and neck bandages to, thereby gaining the advantage of a four-tailed bandage in addition to the mento-dental feature of the splint. In the early stages of the case the tails can be kept tied, excepting at the times of feeding, or left off altogether, as the case may require. Additional trays of different sizes may be made to suit the case; they are inserted into the splint by removing the screw, and withdrawing from the slot the one in place and inserting the one desired. The size and shape are further modified by bending the cup (which is made of block tin) to any shape desired. The part of the splint coming down and fitting on the crowns of the lower teeth is designed to be filled (when applied) with plaster of Paris, softened gutta-percha, or other material suitable for holding the teeth firmly in position. This splint is designed to be made and kept on sale with other surgical supplies, one outfit being sufficient for all cases where it may in any way be demanded.]

Fig. 2 represents the splint in position. The splint represented in Fig. 1 would not need the cotton packing, and can have the four tails attached or detached at pleasure.

Fig. 3 represents a plaster model of the jaw-bone, as near like the jaw when found as could be constructed; the projecting left lateral incisor and the amount of bone, as represented by the line, were lost.

Fig. 4 represents the splint used in the case, which is constructed out of the ordinary block-tin impression trays, the fittings being made of brass plates and wire soldered together with soft solder; the screw is an ordinary stove or carriage bolt, made to cut its own thread in the soft solder

which has run in the hole in the lower part of the apparatus, and is to be tightened or loosened with an ordinary screw-driver. The chin-support was packed with cotton wool.

Fig. 5 represents the case after recovery.]

June 1, 1892.

Discussion.

Dr. John S. Marshall said he was interested in the splint, and that while it served its purpose admirably, he thought the better way to treat fractures of the inferior maxilla was to wire the parts firmly together with a silver wire, as the mouth is so much easier to keep clean than when a splint is worn. In such cases he dissects down the tissues till the edges of the bone are reached, the tissues and the periosteum being laid back. A drill is then passed through near the end of the bone, care being taken to avoid the roots of the teeth and the inferior dental canal. A silver wire is then passed through the holes in the ends of the bone, and the parts brought together. Two or more such sutures are made, and secured until the fractured parts are immovable. He has treated many such cases in this way without any bandages. No after-treatment is required except frequent washings with an antiseptic mouth-wash, for which he prefers Thiersch's solution, as follows:

Boric acid, 12 parts;
Salicylic acid, 4 parts;
Water, 1000 parts.

This is a good antiseptic: is not dangerous, nor unpleasant to the taste, only a little bitter.

He related the cases reported on pages 575-6 of the *Dental Cosmos* for 1892, and in reply to a question said it was usually necessary to leave the wires in place from four to eight weeks, the time depending upon circumstances. In nearly all cases suppuration will take place and retard the knitting of the bone.

Dr. Curtis said the results of the case reported by Dr. Fletcher are exceptionally good, and the splint is very well adapted to the class of injuries it was designed for. He thought in hospital cases the plaster bandage was perhaps as good as anything,—that is, where there are teeth in both sets; but before it was applied several layers of cotton should be placed under the chin whenever the bandage will come in contact, to lessen the liability of abscesses forming.

Dr. Marshall said that the evidence of all surgeons to whom he had talked upon the subject was that a splint of this character was always a failure where there was any displacement, and that the system of wiring was always used.

Dr. Allport said that he agreed with Dr. Marshall that wiring was better than any splint. He believed that he himself was the first man who used wire for this purpose. It was about thirty years ago, and he got good results. He related the case of a lady who fell from a step and broke each jaw in four pieces. He wired all the pieces in place, and the bones united perfectly, and the result was in every way satisfactory. He thought that oral surgeons were better able to handle such cases than the general surgeon.

Dr. Barrett reported a case of a boy who was run over by a heavy wagon in such a way as to crumble the lower jaw frightfully. He was brought to the city and put in the hands of a competent and skillful surgeon, who wired the pieces together by wire around the teeth. When the mouth was open the parts were kept in proper position, but when shut the jaw went away around to one side. Dr. Barrett, being called in consultation, found four physicians there, all of whom confessed that the injury was beyond their skill to repair, hence they had called him in as a specialist in these things. The boy had been under an anesthetic for most of the time for four hours.

Reasoning by exclusion, as there was no crepitation and no fixation, he concluded that there was no luxation, and no complete fractures that were not securely wired, and that there was only one possible cause for the condition: an incomplete or "green stick" fracture across the angle of the ramus. With the muscles relaxed the jaws fell directly down, but when the boy attempted to close his mouth the temporal and internal pterygoid, with some of the fibres of the masseter, not being counteracted on the other side, drew the jaw to one side, it bending or yielding at the point of the incomplete fracture.

The boy was taken to Dr. Barrett's office, and gutta-percha impressions taken of both jaws. The impressions were trimmed to the proper shape, and a notch cut in front

for feeding through, and the boy having been again anesthetized, the occluding surfaces of the gutta-percha impressions that were to serve as splints were warmed until they were adhesive, and placed upon the teeth; then by main force the jaw was carried to its proper place, the two gutta-percha splints stuck together, and the whole was fastened with a two-tailed bandage. The operation was a perfect success.

Dr. Fletcher said that though wiring was undoubtedly to be preferred in many cases, it was not admissible in such as he described, because in his case at least a quarter of an inch of the bone was lost by comminution, and to wire the bone together would make proper occlusion of the teeth impossible.

DISEASES OF THE GUMS.

Read in the section of Oral and Dental Surgery, at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

BY JOHN L. GISH, M.D., D.D.S.,

OF JACKSON, MICH.

It is not my purpose to try and cover the whole field of pathological conditions that would naturally come under the above heading, but simply take up such parts as are more common in our general work.

So far as the anatomy, histology and normal conditions of the gums are concerned, I will pass over that division, and not consume time by repeating that which we must know, in order to fully appreciate any abnormal conditions or changes that may take place in the gums.

When you deal with pathological conditions, let them exist wherever they may, in our body, we at once encounter the problems of growth and development, nutrition and assimilation. So here, when we find diseased conditions of the gums, we know that the laws that govern the process of growth and development, and the functions of nutrition and assimilation, have been changed to a greater or less extent, with the corresponding resultant of active or passive congestion, hypertrophied or atrophied conditions or increased cell growth of the tissues involved.

When we take up active or passive congestions or the acute and chronic inflammations of the gums we consider the type of cases that come to our notice more often, and cause more trouble to our patients, than is made manifest by the hypertrophied, atrophied and cell growth conditions combined. Under the section of acute inflammation of the gums, we have to contend with the acute or inflammatory œdema, marked by its rapidity of development, severe pain, tumefaction and great tension of the tissues, due to some chemical or traumatic lesion, and closely connected to this pathological condition, we do encounter gangrene of the mouth (or noma), which is less rapid in its development and attended with a less degree of pain, but far more destructive in its results, and much more obstinate in yielding to treatment. Under this division we may also include the acute catarrhal, herpetic and croupous inflammations.

Under division second, or passive congestions where the circulation is slowed in its course, affording an opportunity for the red blood corpuscles to accumulate in the arteries, and the white blood corpuscles to find their way into the veins, whose anatomical structure, viz.: their thin walls, affords an easy escape of the white blood corpuscles, by their amoeboid movements, into the surrounding structures, and at the same time with the passage of the white blood corpuscles, or leucocytes, there is also

the transudation of the liquor sanguinis, forming the serous effusion, which together with the leucocytes, dividing and multiplying, excite the tissues into cell-proliferation. This in turn causes a greater nutritive activity with the formation of a cell growth, which is very unstable in its composition and soon passes into retrogression, or the breaking down stage, with the formation of pus, which dissolves alike the alveolar process, the dental organs and the soft structure, thus completely destroying the involved tissues and ending a cycle of changes, only again to be renewed, and cause further destruction of the parts by continuity and contiguity, as is done in chronic catarrhal inflammations, phlegmonous and suppurative inflammations or abscesses, and fistulae of the gums.

Under division three we will include hypertrophied and atrophied conditions, and under division four such cell growths as the fibrous, papillary, and vascular tumors and epitheliomata of the gums.

Division four including as it does, the variety of cases that come to our notice the least, have pathological conditions in common, varying only in the elements involved, and I cannot do as well in giving their pathology, as I can to repeat the words of Wedl, who regards papillomata of the gums as essentially localized hypertrophies of the papillary portion; generally associated with caries and located upon the facial surface of the gum; their diminutive conical elevations form dome-shaped enlargements and present an analogy with acuminate condylomata.

Fibromata of the gum occur in the submucous connective tissue in the form of projecting, superficially smooth, compact tubercles, which slope away towards the surrounding tissues; they are by no means of rare occurrence, especially those of smaller dimensions, and are composed of firm bundles of connective tissue with numerous interlacings, and imbedded cells. Linhart extirpated a fibroma of the submucous connective tissue nearly as large as a hen's egg.

Angiomata (vascular tumors) are of rare occurrence, and some give rise to hæmorrhage which endangers life. Salter reported a new-formation of this kind which was composed of numerous convoluted blood-vessels and connective tissue. The surface of the tumor, which was lobulated, located upon the neck of a tooth and as large as the berry of the common winter cherry, was covered with papillæ like those of the gum and with epithelium. The latter condition serves to indicate that the new-formation was seated in the submucous connective tissue of the gum and not, as alleged, in the dental periosteum.

Epithelial cancer sometimes occurs primarily in the gum and knotty elevations are developed, which increase in number and extent and spread to the submucous connective tissue, dental periosteum, alveolus and alveolar process. The epithelium undergoes notable proliferation and imparts a brighter color to the knots; it also dips down to a considerable depth into the substance, where the familiar rosette-shaped, nest-like groups of flattened, often distinctly ribbed cells are met with. Sometimes the papillæ of the gum also grow considerably in length and breadth, and the cancer acquires the appearance of a succulent wart which finally ulcerates. Schuh observed the origin of the epithelial cancer upon the buccal surface, usually in the vicinity of the last molars. Here also, he says, it maintains for a time the char-

acter of the broad cancer; that is, of a form of cancer which increases only in its extent of surface, not in depth, remains superficial, therefore, resembling a granulating surface, and slowly destroys the organic parts.

The hypertrophied and atrophied conditions, or division three of this paper, are more often met with than the conditions under division four, and of the two types of conditions under division three, the hypertrophied is far more common.

Atrophy, as the name implies, is a progressive and morbid diminution of the bulk of tissues of which the gum is composed. Atrophy is generally symptomatic, but it may be due to a local cause. Now inasmuch as atrophy from a pathological standpoint is just the reverse of hypertrophy, it will not be necessary to review its general pathology in order to state the changes that take place, but the general pathology of hypertrophy of the gums as given by Wedl, will serve the double purpose; hence, hypertrophy of the gums occurs frequently among the sequelæ of a chronic inflammatory condition of the root membrane following caries of the teeth, and is induced, also, by the irritation of the gums produced by the products of the degeneration of the hard tissues of the teeth.

The sharp edges of the stumps, too, which remain after the destruction of the coronal portions and necks of the teeth, become the sources of irritations.

The hypertrophy occurs both in the papillary portion and, beneath the latter, in the corium of the mucous membrane. When it occurs in the former, it is most conspicuous upon the facial surface of the gums and is confined to the region of one tooth or a few teeth, or acquires more extended limits in cases of caries involving the crowns or roots of several teeth.

The epithelium, also, participates in the hypertrophy which affects the papillary portion.

The secretion of mucous usually is increased in connection with papillary hypertrophy, and partial exfoliations of the epithelium occur, leaving superficial erosions. Bleeding readily occurs from the painless swellings, even from slight mechanical irritations. Sometimes the papillary portion is not involved and the proliferation is confined to the corium, occasioning a swelling of the gum, which has a smooth exterior. In these cases, which are more protracted, the cellular infiltrations rise to a tendinous connective tissue; in other words, the hypertrophic gum becomes sclerosed, and, consequently, it presents an increased power of resistance and a diminished succulency. The gradually obliterated papillary portion is covered by a common, thick, superficially smooth layer of epithelium. Notwithstanding the increased consistence of the corium, cellular-infiltrates are met with in the form of long chain-like rows or clusters, of ovoid cells, which are enclosed with a capsule of fibrous tissue. Since the periosteum, also, beneath the indurated gum is thickened, it is by no means strange that cross sections of the latter sometimes present slender trabeculae in the process of growth, together with young bone-corpuscles," while the above has given us the general pathology of hypertrophic conditions of the gums, there is yet another subdivision of this type of cases, that does come to our notice quite frequently and I mean the hypertrophied conditions of the tissues that often times surrounds, or accom-

panies the eruptions of the wisdom tooth. It is true that in this particular type of cases, we have a greater degree of pain, more swelling, and inflammatory action extending to the surrounding tissues, than is the case in true hypertrophy of the gums, but the difference in the exciting cause, will explain the difference in symptomatic results.

In true hypertrophy, usually the result of some chronic inflammation of a root membrane, or the irritation of the gums produced by the products of the degeneration of the hard tissues of the teeth, we have the train of symptoms or conditions as above given; but in this particular type of cases caused by undue pressure on the surrounding tissues, and still further augmented by the close relations of the parts, and the mechanical action of mastication we account for the difference in subjective symptoms.

In chronic catarrhal inflammation, included under division second, or passive congestions we find the mucous membrane thickened and of a rose color with white spots which appear and disappear with the exfoliation of the epithelium. The patient complains of unpleasant sensations such as burning, itching and tickling, and as a result of this congestion there is a grey mucilaginous, and at times a puriform secretion poured out upon the surface of the gums. Of course the degree of this inflammation is modified to a greater or less extent, according to the time that the lesion is allowed to run, and as to whether the patient is suffering from other systemic troubles, or from catarrhal inflammations of surrounding membranes.

Phlegmonous inflammation, is somewhat sudden in its onset, but is attended with but little or no fever. The congestion is confined to both the corium and submucous connective tissue, with ulcerations occurring in small, shallow, yellowish spots or in the form of one large phagedenic ulcer. If this ulceration is allowed to continue, we will have necrosis of the osseous substance, beneath. Recovery is very slow and the surrounding membrane is spongy, from infiltration of the liquor sanguinis, very sensitive and bleeds easily. This type of cases is common, and is found in the well nourished, as well as in those who have systemic complications.

Suppurative inflammation, is where the lesion has been such, as to cause the passive congestion to result in the formation of pus, this pus may find its way to an external opening, or it may undergo, resorption. If the exciting cause has been mechanical such as compression, contusion, or laceration, the recovery is speedy with suppuration, but if on the other hand the exciting cause is a diseased root membrane of a chronic character, and the irritant becomes extended to the gum a fistula is formed, which will continue to discharge its secretion, until the parts are made healthy within.

Again referring to division one, under which we consider inflammatory oedema, acute catarrhal, herpetic and croupous inflammations, there is in common the rapidity of onset, severe pain, tumefaction and sponginess of gums, attended with the unpleasant sensation of itching and burning, in addition to this, the herpetic inflammation is characterized by the formation of vesicles, which rupture and remain a superficial erosion healing without cicatrization; closely allied to the herpetic condition is the inflammatory affection of the gums, developed during the course of an acute exanthemata, such as scarlet fever, measles etc.

The croupous inflammation, not only has the subjective symptoms that attend all active congestions, but it is characterized by the greyish structureless membraniform exudation, which may be very easily detached. This exudation takes place very rapidly and as rapidly undergoes degeneration with the production of an offensive, sanious mass, which dips down between the gum and the tooth thus exciting the root membrane into an active congestion with the corresponding loosening of the tooth. If the action is not checked the alveolar process is destroyed, and the teeth are lost.

In considering the treatment of the above pathological conditions, it must be governed according to the nature and type of the case in hand. But to generalize, I will say that in treating division first, or active congestions, with the exception of those cases due to acute exanthemata, I have found in galvanic and faradic electricity my most valuable agent, and it is so valuable, from the fact that by the proper manipulation of this subtle agent, we can correct circulatory disturbances, promote absorption of the transudated fluids, and cause the secretions and excretions to be changed into their normal condition.

Take for instance a case of noma, destructive in its results, and obstinate to cure, here by an application of electro-chemical cauterization from the positive pole, we can arrest the superficial destruction of tissue, and produce a healthy restoration of the parts beneath.

In treating the passive congestions I can apply electricity with benefit, only to the chronic catarrhal inflammations, the other types of cases of the second division are treated according to the principles of good surgery.

In dealing with hypertrophies, fibrous tumors and epitheliomata the electro cautery has been my best and most successful remedy. In order to cope with the papillary and vascular tumors, the galvanic current has been my most potent agent.

THE CONDITION OF THE DENTINE IN PULPLESS TEETH.

Read in the Section of Oral and Dental Surgery, at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

BY W. C. BARRETT, M.D., D.D.S.,
OF BUFFALO, N. Y.

I had promised the Secretary of this Section that I would prepare and read a paper at this meeting upon the "Condition of the Dentine in Pulpless Teeth." It was a subject upon which I had bestowed some thought, but with the literature of which I had not made myself thoroughly acquainted. I had read Prof. Miller's work on "The Microorganisms of the Human Mouth," and his communications to the various journals, notably *The Dental Cosmos*, but not with this special subject in mind. I had not collated his writings on this theme, and hence had not collated them. When this had been done, I was astonished at the thorough manner in which the ground had been covered. Had I examined my subject earlier, I should not have attempted an excursion in the field, but having engaged to present this paper, I will endeavor to redeem my promise, premising that I can do little save to call attention to the great work done by Prof. Miller in this direction, a work

which does not seem to be fully appreciated, and which perhaps will not be until each attempts, like me, specially to study it for himself.

In view of his exhaustive experiments, one can but wonder at the seemingly crude theories now held and taught by some men to whom we naturally turn for illumination. Perhaps I shall do more good by placing Dr. Miller's comprehensive studies before you for discussion than I would by effort in any other direction, for it must be remembered that his are not mere generalizations, such as mine must necessarily be; they are the result of long series of conclusive, scientifically conducted, original experiments and observations, and they are not to be overthrown by any inductive reasoning whatever. In view of the overwhelming original testimony which he introduces, no man has the right to dispute his deductions until he is fortified by a like mass of opposing facts, deduced from like carefully conducted experiments; or until he can indisputably demonstrate that the conclusions reached by Dr. Miller are not warranted by the results obtained.

The dentine, deriving its nutriment from the pulp of the tooth through the dentinal fibrillæ, is separated from all the other tissues of the body, through investment by the cementum and the enamel. The latter tissue is not only practically devoid of living matter, but it is not in direct relation with any tissues save the dentine itself. For our present purposes then, the enamel may be looked upon as a simple protecting cap, whose office it is to preserve the dentine and pulp from injury.

The cementum is of a different character. It is but slightly differentiated from true bone. It is in relation with a periosteal membrane, and it is nourished like bone through a system of lacunal corpuscles, connected by canaliculi.

In young teeth it is not infrequently the case that there is even a kind of system of Haversian canals, traversing the cementum and dentine between the pericementum and pulp, whose office it is to assist in maintaining the vascular supply, and incidentally, perhaps, to afford nutriment to the deeper cementum corpuscles.

The dentine is yet more differentiated, and in its structure has lost the lacunal corpuscles, while the canaliculi are modified into the dental fibrillæ. Their office is not materially changed, nor are we to suppose that the contents of the dental tubuli differ very widely from the canaliculi of true bone. They form the living portion of the dentine, as the lacunal corpuscles and the canaliculi form that of true bone. The dentinal fibrillæ are in connection with the vascular pulp, and from it derive the nutriment necessary to their continued life. The corpuscles found in true bone and in cementum are absent, and hence there is little that bears a resemblance to that concentric texture of true bone which forms its lamellated structure. At the extremities of the dentinal fibrillæ, we have the irregular inter-tissual spaces which mark the boundary line between dentine and cementum, and which may perhaps be considered as modifications of the cementum corpuscles, but they are not intimately connected with the dentinal structures.

The dentinal fibrillæ, depending as they do on the vascular pulp for nutrition, certainly lose their protoplasmic vitality when separated from it. Let us consider for a moment the condition of the dentine in a tooth the pulp of which has, without medica-

tion, just been removed. The fibrillæ have been freshly torn from their relations with the pulp, and remain filling the dental tubuli as before their violent separation. Like all protoplasmic material, they are composed of the great quaternary of elements which enter into the composition of all organic elementary structures.

But the dentinal fibrillæ probably also contain other elements, such as sulphur and phosphorus, which make it more near the nature of albumen. Indeed, it is probable that if we consider it as clearly albuminous, we shall not do much violence to nature. Carpenter says that this substance is the proper pabulum of the animal tissues generally, and so the dental fibrillæ, possibly modified somewhat, may be looked upon as albuminous in their nature.

The dentinal tubules which contain the fibrillæ are exceedingly minute. For the putrefaction of the contents of the tubuli it would be essential that putrefactive organisms should enter them. While it is quite possible that these may penetrate the tubuli, it must be to but a limited extent. In an article in the *Dental Cosmos* for May, 1890, upon "The Decomposition of the Contents of the Dental Tubuli," Dr. Miller shows that from their minute size and the very small amount of nutriment for the microorganisms which they contain, any bacteria which enter them must soon perish from want of pabulum, to say nothing of the fact that they are mostly aerobic, and so could not possibly live in the tubuli for any length of time.

But not satisfied with *a priori* reasoning, he commences a rather remarkable series of experiments and observations, from which he incontestably deduces the conclusion that bacteria do not penetrate the tubuli of undecayed dentine to any marked extent; certainly not enough to cause any necessity for the disinfection of the dentinal substance in teeth in which there has been no decay within the pulp canals.

I need not enlarge upon this. The record is open to the inspection of all, and no one has yet dared to take issue with Dr. Miller upon this point. It must be accepted that in the dentine of the roots of the teeth in which decay has made no progress, there is no infection of dentine that demands any antiseptic treatment aside from that usual in pulp canals.

What then becomes of the contents of the dentinal tubuli? It is but necessary to consider their character to form a clear estimate of this. The dentinal fibers cannot be considered as pure albumen, for that is only found in connection with other substances in the body. But whatever its exact composition it presents certain characteristics, one of which is its tendency, when at rest and separated from living tissue, to dissociate the watery portion, and to form a dried residuum which is insoluble. This condition may also be produced by most acids, by the metallic salts and by creosote.

The natural tendency then, for an albuminoid fibril, would be to assume a mummified condition, most conducive to its indefinite preservation, when kept in the state in which it will be found in the dentine of a tooth root.

Fibrine is but comparatively slightly differentiated from albumen. It contains the same elements, but it offers certain physical characteristics that distinguish it. Albumen is coagulated by heat, and by certain agents. Fibrine coagulates spontaneously

when exposed to the air. If then the fibrille of the dentine approach fibrine in their characteristics, they will undergo the change called coagulation without the intervention of any medicinal agent whatever. It is in this condition that, if sealed up from external influences, they present the very best state for the preservation of the tissue in which they are found. Hence the condition of the dentine is best in which the contents of the tubuli have been coagulated, or separated from the watery elements, and permitted to become a kind of minute mummy within their investing sheaths.

But the investigations of Miller, to which I have already referred, determine another matter. He did not find that the mouths of the dental tubuli, in teeth from which the pulp had been removed, were opened toward the pulp chamber.

He had under examination nineteen teeth. In ten of the roots of them he found the canals to be completely or partially lined with a homogeneous structure, containing few or no tubuli, but occasionally a formation resembling a bone lacuna, and bearing a much more near resemblance to cementum than to dentine. This layer is impenetrable to microorganisms, and therefore forms a protection to that tissue when the pulp has been removed. We find then, that the dentine is not only protected by the cementum on its external aspect, but very often by a modification of this tissue on its inner surface.

There is, therefore, little danger of infection of the contents of the dental tubuli. But even if this were possible, I cannot conceive that it would matter much. The amount of infectious matter would be so small, and the chance for the penetration of the gaseous products of decomposition through the dentinal tubuli, past the zone of demarcation between dentine and cementum, and finally through the cementum corpuscles and canaliculi which are themselves filled with living matter, would be so remote, and its influence upon the pericementum so infinitesimally small, that it seems folly to take it into consideration in the presence of so much more potent factors.

Clinical experience too, as is so plainly stated by Dr. Miller in the article to which reference has been made, does not sustain the theories of those who insist upon the possibility of infection from dentine. If the contents of the pulp canal be completely removed, the territory made thoroughly aseptic and the space finally filled, there is, so far as I am aware, no record of any trouble from the dentine. Even admitting that there exists within the dental tubuli matter which is susceptible to putrefactive changes, it is too small in amount to induce any disturbing conditions in the presence of a pulp canal carefully filled with a material which must seal the exceedingly minute mouths of the tubules wherever they are not already stopped by the modified dentinal layer of which Miller speaks. In the presence of much more important things, it seems like bad judgment to elevate such a mole-hill into a mountain, for it has a tendency to carelessness in things that need more attention. I doubt whether there has ever been a case of re-infection of the tissues about a tooth that has had its root filled after antiseptic treatment, that cannot be directly traced to some imperfection in the manipulation, or to some infected pockets outside the tooth itself. It is well known that the usual place for the formation of an infected

pocket is at or near the apex, and that there may be a penetration of the microorganisms and the formation of infected pockets for some distance back in the bone. I have myself seen at least three such, extending back from the point of an incisor tooth until the last one was over the second bicuspid, and each of these separate pockets connected with the original one at the apex of the incisor.

They were only reached by a long incision through the gum and external alveolus, extending from one to the other until the last one had been reached. If the infection had been from the dentine, it would have manifested itself quite differently.

Undoubtedly there are cases in which the infected spot is at some point in the pericementum between the gingival margin and the apex of the root. But this does not by any means prove that it came from infected dentine. Perhaps after the apical foramen, the most usual place for the formation of an abscess is at the bifurcation of the roots of a bicuspid or molar. I believe this to be due to the fact mentioned earlier in this paper, that something analogous to an Haversian canal there may penetrate the cementum and dentine, from the pericementum to the pulp. I have demonstrated such many times.

Not infrequently an abscess refuses to yield to the usual treatment through the pulp canal, and for the reason that the medicaments fail to reach the infected point. But such instances cannot be said to be produced by infected dentine.

There is, in truth, another foramen analogous to that at the apex, and it becomes septic in precisely the same manner as does the latter.

In what I have previously urged, we have presupposed that caries has not commenced within the pulp canal. And yet we are all well aware that in cases in which the pulp had been long dead, and there has been extensive decay of the coronal portion of the tooth, there was caries of the dentine commencing within the pulp chamber and extending down the canal.

In instances like this, of course there will be thorough infection of the dentine. It will not, however, be due to decomposition of the contents of the dental tubuli, but to infectious matter which may find its way into the hollow from external sources. It would be as manifestly improper to fill such a canal without removing the carious portion, as it would be to fill a cavity from the outside without careful excavation.

Here would be an instance in which the reaming out of the canal to the depth to which caries had penetrated would be eminently proper practice. It is very seldom that this decay will extend far down the root canal, or be very deep, without such destruction of the crown and cervical portions of the root as to make preservation practically impossible.

As regards the use of coagulating agents in the treatment of root canals, I cannot conceive of any objection to them. If by any it be thought necessary that dentine should be disinfected and made more aseptic, this can only be accomplished by agents which have the power of penetration in a marked degree. These are usually coagulants, like chloride of zinc, bichloride of mercury, etc. Upon this subject I can only refer to the experiments and observations reported by Dr. Miller, in an article on "The Relative Rapidity with which various Antiseptics Penetrate Pulp Tissue," published in the *Dental Cosmos* for May, 1891.

Discussion.

Dr. E. L. Clifford said the discoloration found in dead teeth was probably caused by the formation of sulphides of some of the different metallic agents used in medicaments. The less we treat the teeth in the vast majority of cases, the better will be the results. No law can be laid down to which exceptions could not be found, but in the majority of cases the quicker we fill a root-canal and the cavity over it, the more satisfactory the operation will be. Two things, however, work against immediate root-filling: first, the difficulty of drying the root; and second, soreness of the tissues about the root. If there is no way to dry it thoroughly, or if it is too sore to work on, then it is better to wait. In all favorable cases he advocated immediate filling.

Dr. W. W. Allport said the Section was under obligation to Dr. Barrett for a most excellent paper.

In our practice we have two classes of pulpless teeth to treat. Those we devitalize leaving the dentinal fibers in the condition when devitalization took place, are in the most favorable condition for successful treatment. The other class is where the nerve has been dead for a long time. Here the condition is different, and the treatment must be adapted to the altered condition.

Our aim should be to prevent discoloration of the dentine. Whether this can best be done by the use of oils or of chlorine, or by thoroughly drying the cavity and canal, so as to leave the fibers in a mummified condition that will prevent decomposition, is the question to decide. In old cases we should use every means in our power to restore the normal color, but in freshly devitalized teeth little or no treatment is necessary.

Dr. Gish said that whatever treatment was necessary could as well be done in one sitting as in twenty, and that the duty of the dentist to his patient calls for the course of treatment necessitating the least trouble and pain, therefore he advocated immediate filling.

Dr. M. H. Fletcher said that to him it seemed that the pulp-canal before filling must be surgically clean; that is, it should have all substances removed which might contain or support any spores or bacteria. In a case reported by Dr. H. A. Smith in a paper read before the Mississippi Valley Dental Society, trouble arose at the apex of a tooth that had been filled for fourteen or fifteen years. In the discussion it was said that there had been a continual effort at the apex of the root to dissolve the root as a foreign material. This will always happen if there should be an excess of filling-material forced through the end of the root, and if the tubuli had not been thoroughly disinfected the septic matter contained in them would set up suppuration.

In regard to the substance covering the tubules from the pulp-chamber, he had learned that after the tooth is fully formed there is a deposit, as it has been called, a translucent zone, lining the chamber and pulp-canal, but the deposit as he had seen it is penetrated by the tubuli. This must be so or the deposit could not take place, and he thought the tubuli were sufficiently numerous to need disinfection.

Dr. G. L. Curtis said the paper was an argument in favor of removing the pulp while it was healthy, and not destroying it by any substances that would enter the tubules. He could understand how in teeth so treated the deposit spoken of would occur, but in teeth dead for a long time it would not be there.

Dr. A. E. Baldwin did not agree with Dr. Barrett's idea that anything was so well proven that a dentist should finally accept it as a truth without satisfying himself by independent investigation. Because another had formed a theory and by experiment satisfied himself of the truth of it, was no reason anyone else should accept it. In regard to bacteria and microbes, and the necessity of making our root-canals aseptic, he disagreed with the paper. He did not think we could get them in better condition than by desiccation. He seldom uses anything in the way of antiseptics except carbolic acid in five per cent. solution, and has very good success. If he can get the root cleaned out, in an ordinary sense, whether it is, "surgically clean" or not, and get it thoroughly dry, he did not worry about the success of the filling. He thought a great deal of the irritation about the end of the root could be treated from the outside rather than through the root-canal.

Dr. Barrett said we would have to modify our view in regard to the pathology of alveolar abscess. He believed it to be thoroughly demonstrated that the pericementum furnishes all blood-supply to the growing tooth. He did

not believe anybody ever saw arteries and veins passing through the apical foramen. He believed there is something like Haversian canals that pass through the dentine and the cementum to the pericementum, and that pus will often be found about diseased teeth at the bifurcation of the roots, and this shows why the treatment through the roots will not succeed. He believes that thorough drying will make a tooth aseptic, but sometimes the point of infection will be found away off from the tooth that seems to be the cause of suffering to the patient. In these cases, of course, the treatment must be on the outside, and followed up till the point of infection is discovered and broken up and cleaned out.

THE ETIOLOGY OF LARYNGISMUS STRIDULUS.

Read in the Section of Laryngology and Otology, at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June, 1902.

BY JOHN O. ROE, M.D.,

ROCHESTER, N. Y.

Scarcely any affection has excited so much speculation in regard to its cause as laryngismus stridulus. The first definite theory regarding its etiology was put forth by Kopp in 1830, who asserted that it was caused by the enlargement of the thymus gland.¹ In 1836 Ley maintained that it was always due to "paralysis of the abductor muscles arising from the pressure of strumous, bronchial or cervical glands on the recurrent or pneumogastric nerves."² Marshall Hall ascribed laryngismus to a reflex cause, believing that it resulted from irritation in some other part of the body;³ and this theory was supported in 1849 by Reed, who observed that the spasm was frequently caused by retained meconium, fecal masses and worms.⁴

These opinions, however, were not universally accepted, for it was generally believed, as Mackenzie observes, that the weight of evidence pointed to the practical acceptance of molecular changes in the nerve centres as the essential cause of the phenomenon.⁵

In view of the fact that it occurs most often in rachitic children, Elsässer⁶ in 1843, and Lederer⁷ in 1852, maintained that it was caused by craniotabes and softening of the occipital bones, and that the attacks were excited by the pressure to which the brain was subjected when the child lay on its back.

From recent observations made from a physiological and neurological standpoint, Hughlings Jackson (than whom there is none more competent to speak on this subject) asserts that the relation of rickets to attacks of laryngismus stridulus in children is due to the abnormally soft ribs, that render the action of the diaphragm insufficient (the infant's breathing being almost wholly abdominal), and thus, especially during sleep, when the attacks commonly occur, there is an overstimulation of the respiratory centres by supervenous blood, and an excess of the natural stimulant, which result in convulsions.⁸ In a previous paper on this subject, Hughlings Jackson⁹ was at a loss to explain how this spasmodic effect was brought about by overstimulation of the

1 "Denkwürdigkeiten in der ärztlichen Praxis," Frankfurt, 1830.

2 "Essay on Laryngismus Stridulus," London, 1836.

3 "The Nervous System," 1841.

4 "On Infantile Laryngismus Stridulus," London, 1849, p. 71.

5 "Diseases of the Throat and Nose," London, 1880, vol. i, p. 479.

6 Der Weiche Hinterkopf, Stuttgart, 1843, p. 161.

7 Beobachtungen über Spasmus Glottidis, Jour. für Kinderkrankheiten xviii, 1852.

8 "Neurological Fragments," British Med. Jour., 1892, vol. i, p. 489.

9 "A Contribution to the Comparative Study of Convulsions," Brain, London, April, 1886.

brain centre; but since Seamon and Horsley¹⁰ have found in their experiments that the adductors as well as the abductors of the vocal cords are controlled by nerves centering in the medulla, it is readily seen that stimulation of this centre may result in abductor disturbance. Hughlings Jackson also shows that similar results may be brought about by other methods, as for example in rabbits, by: 1. Cramping the trachea, thus producing insufficient oxygenation of the blood, and as a consequence, the overstimulating of the nerve centre; 2. By paralyzing with curare the motor nerves ending in the respiratory muscles, which results in convulsions of these muscles on account of the overstimulation of their nerve centres through the deficient aeration of the blood; 3. By dividing the phrenic nerve, thereby paralyzing the diaphragm (with which respiration in them is almost entirely carried on), which causes them to die of asphyxia, associated with convulsions; 4. By rapidly bleeding them to death through the opening of an artery, when convulsions are produced almost identical with those produced by compression of the trachea; 5. By tying the great arteries of the head, depriving the medulla of arterial blood and leaving the head surcharged with venous blood, when convulsions are produced.

In explaining this phenomenon Hughlings Jackson does not claim that laryngismus stridulus is an asphyxia fit. Were this the case, he says, "this condition would certainly end in death in every instance; for as Dr. Gray says, 'supervenosis initiates the spasm, which increases the supervenosis, and laryngismus would consist of a single, and necessarily fatal, gigantic respiratory spasm.'"¹¹ We know that in some instances the respiratory spasm ends fatally. That this does not more frequently occur is explained by the fact that when there is an enforced closure of the glottis by the overstimulation of the adductor centres, and the blood has become supervenous, it so acts upon the medulla as to bring the abductor centres into activity, and consequently to open the glottis and to re-establish respiration. This is the explanation of Jackson.

In analyzing, in the light of present knowledge, the various views relative to the causation of the affection, but one of these theories, that of peripheral irritation, put forth by Marshall Hall, is at all satisfactory. This irritation, in the production of central nervous diseases, has been amply illustrated by recent investigations of other nervous phenomena, such as asthma, hay fever, megrim and allied affections.

Other views relative to the causation of this disease, such as enlargement of the thymus gland, the softening of the occipital bones, thereby permitting pressure upon the brain, have been more or less fanciful, or the result of the investigation of cases in which this affection was simply coincident with these conditions.

The theory of the excitation of the central nervous disturbances by disturbed physiological conditions is, as we have seen, most ably explained by Hughlings Jackson. He, however, has studied the subject only from a physiological standpoint, and therefore fails to point out why it is that the nerve centre in the medulla controlling the abductor muscles of the larynx is more susceptible to irritation, or to its normal stimulus, than the nerve centre controlling

the adductor muscles of the larynx. This we believe can be readily explained by the fact that these nerve centres are rendered thus susceptible by irritation of the larynx itself, and that more or less continued irritation of the larynx has the effect to excite these nerve centres to undue activity, so that an irritation of the larynx that would at first have no appreciable effect on the nerve centres, would, when the nerve centres had become irritable and hyperaesthetic, have the effect to produce abnormal effects in the parts under their control.

In the study of the natural history of the disease we will readily see that influences and conditions that predispose to the causation of laryngeal irritation and laryngeal disease are exactly the conditions that predispose to the production of laryngismus stridulus.

Laryngismus stridulus is of most frequent occurrence in ill-nourished and rachitic children, and during the early part of the year when the system is depressed by long confinement indoors, and when the atmosphere is most irritating to local affections.

Heredity has been thought, in some instances, to play an important part in its production, as when both parents suffered from it during their infancy. In cases where the majority of the children in large families have suffered from laryngismus stridulus, heredity may have much to do with the production of this affection; only, however, to the extent that the children inherit physical conditions that predispose to laryngeal irritation and susceptibility to nervous disturbances. In the cases where many children in the same family have suffered from this affection, it may be accounted for by the fact that the children have all been subjected to the same influences that produce local irritation.

Children subject to snuffles, and those prone to frequent colds in the head and to sore throat, are especially liable to attacks of this affection. This, as we can readily see, is accounted for by the well known effect of nasal irritation and nasal obstruction, combined with oral respiration, in the production of laryngeal irritation. We also observe that the attacks of laryngismus stridulus usually occur during the night, at which time intra-nasal turgescence most readily takes place.

We also see that various subjective conditions which may have the effect to cause irritation of the larynx, are liable to cause attacks of laryngismus stridulus, as in the case of peevish and irritable children who indulge in much crying, thereby breathing largely through the mouth; also the forcible oral respiration consequent on laughing violently, and in fact, all those conditions that tend to cause irritation of the larynx will produce attacks of this affection. Thus we see that all conditions that produce more or less prolonged irritation of the larynx, tend to produce in children a marked susceptibility to this affection.

We therefore conclude that in the causation of laryngismus stridulus we must have the following conditions:

1. A chronic irritation of the larynx.
2. An abnormal activity of the laryngeal motor centres in the medulla, rendering them more susceptible to the normal blood stimulus and also more sensitive to irritation applied to the peripheral nerve filaments as a result of irritation of the larynx.
3. An unequal susceptibility of the adductor and

¹⁰ "On the Central Motor Innervation of the Larynx."

¹¹ Brit. Med. Jour., op. cit.

abductor muscles to local irritation and also to the normal blood stimulus.

The abductors of the larynx, situated on the outer portion of the laryngeal framework, are not so much subject to local irritation; their motor centre in the brain is less excited and less susceptible to normal stimulus, and thus, spasm of the abductor muscles is less frequent than spasm of the adductor muscles, and less persistent when it occurs.

THE TECHNIC OF CATHETERISM OF THE EUSTACHIAN TUBE, AND THE INDICATIONS FOR ITS USE.

A Clinical Lecture delivered at the Chicago Polyclinic, August 2, 1892

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By catheterism of the Eustachian tube we understand the introduction of a properly curved tube into the tubal orifice, from 5 to 15 mm. according to the depth of the trumpet shaped opening of the pharyngeal orifice of the Eustachian tube.

Since our time is limited and you can readily find in your text books the historical details of this procedure, I will at once enter *in medias res*.

The necessary instruments for the proper performance of eustachian catheterization are, 1, the catheter; 2, the auscultation tube sometimes improperly called the otoscope and 3, the air bag.

Eustachian catheters are made of hard and soft rubber and of silver. Hard rubber catheters have the advantage of cheapness and lightness; they are not easily corroded. The aurist can supply himself with a number of all sizes and curves, so that each patient may have one to himself and thus escape the danger of possible infection. On the other hand the silver catheter if made of virgin silver, is much thinner than those made of hard rubber giving the important advantage of a larger calibre. Silver catheters are flexible, and any need to change the curve of the distal end is thus easily obtained in one instrument. It has the further advantage of being easily cleansed and sterilized by immersion in boiling hot water, or by holding in the flame of a gas burner (*ausglühen*.)

Again, they are not fragile like the hard rubber ones. It is very important to bear this in mind since it may happen that by a sudden motion or flinching or even the forcible grasping and extracting of the h.r. catheter by the patient the distal end may break off and remain imbedded in the tubal orifice, or serious traumatism to the naso-pharyngeal or nasal mucosa may be entailed. Not so with the silver catheter, on account of its great flexibility.

The soft rubber catheter I will dismiss in a few words. They are difficult of introduction on account of their being too flexible, unless they are made so thick as to be clumsy and too large in diameter for the average nasal fossa, and the small size of their calibre.

The silver catheter, see Fig. 1, is usually made in three sizes being respectively 2, 2.5 and 3, mm. in diameter. The whole length of the catheter should be about 16 cm. and the length of curve at distal end is from 2 to 3 cm. and varies from 140° to 150°. The beak, (see Fig. 1) is olive-shaped and has the advantage over the usual square end, of being less liable to produce a traumatism and the possible con-

sequent emphysema. The indicator ring at the proximal end serves the purpose of indicating the direction of the beak and is usually placed in the axis of the curve of the catheter.

The silver catheter as described is made by Sharp & Smith after the German model.

The air bag I here show you and which has been used in this clinic for several years is known as the Lucae double balloon (see Fig. 1). It is composed of a heavy rubber bulb with an automatic valve at b.; the second bulb is called the balloon, and is supplied with a similar valve at a. It is covered with webbing so as to prevent rupture by over filling. By means of this balloon, we not only get a continuous supply, but also an increased pressure of atmospheric air by compression of the balloon, which can be nicely graduated and regulated at will. The continuous atmospheric pressure obviates the necessity of disconnecting or removing the air bag from the catheter as must be done after each compression when using the Politzer bag. It also has the advantage over the Politzer in permitting of a more accurate observation of the auscultatory sounds, in consequence of the absence of the supplementary noises made during the acts of swallowing or phonation which are unavoidable in Politzerization.

Another advantage of the Lucae air bag is its simplicity and convenience. A short distance above the second bulb or balloon is a hook by which the air bag can be suspended from a button hole in the lapel of the coat (see Fig. 1 d.). At the distal end of the rubber tubing is a tip (see Fig. 1. "c.") which should be made to fit accurately into the funnel shaped end of the catheter.

The auscultation tube (also called the diagnostic tube) consists of rubber tubing made of pure gum. It should be about 120 cm. long and from 8 to 9 mm. outside diameter, that being the size that will fit into the average external meatus. The end pieces of different color usually recommended in the text-books are a disadvantage unless the calibre of these end pieces is nearly equal to that of the rubber tubing. Schwartze and other eminent aurists dispense entirely with the end pieces and prefer to mark the ends of the tubing for patient and operator by making the cut ends respectively oblique and straight.

One end of the auscultation tube is held snugly in the external meatus of the ear to be catheterized, while the other end is brought around and behind the neck, and over the shoulder into the corresponding ear of the examiner. This disposition of the latter end makes it less liable to slip out or being dragged out by gravitation and therefore makes it more secure.

Although Roosa (*loc. cit.* page 76) does not consider the auscultation tube a necessary adjunct to successful catheterism of the Eustachian tube, yet its importance will be conceded when we consider the following facts which our extensive clinical material has established beyond peradventure viz:

1. By means of the auscultation tube we are enabled to determine absolutely, whether the distal end of the catheter is properly engaged in the t. o.¹

2. To diagnosticate the perviousness or patency of the E. t.² which can be quite accurately determined by the pitch of the auscultatory sound or a stenosis

¹ t. o. stands for tubal orifice.

² E. t. stands for Eustachian tube.

of the E. t. by the amount of atmospheric pressure required to overcome the resistance.

3. Condition of the mucosa of the E. t. and middle ear cavity; whether moist or dry, or whether there is present much or little fluid. Moist râles indicate an excess of fluid caused by the admixture of air and fluid contents of c. t.³ If contents are serous, the râles are fine, if mucous they are more like vesicular breathing ("bruit de pluie," "Regensgerausch" from its resemblance to the falling of rain through the leaves of a tree). These râles must not be confounded with those produced at the t.o., when the beak of catheter is not properly engaged but lies near or in the lumen of the ostium.

4. When the sound is intermittent, with explosive noises during the act of swallowing it may indicate stenosis from swelling of the mucosa in cartilaginous portion of the E. t. or near the ostium tympanicum. Explosive sounds may also be due to sudden tension of m. t.⁴ or when there are adhesions between it and the inner wall of the c. t.

5. A whistling or hissing sound will indicate a perforation when it is small. Where the perforation involves all or a greater portion of the m. t. without any appreciable moisture in c. t. the auscultatory sound may simulate that of a normal and patent E. t.

6. If in the presence of a pervious E. t. (which can be determined by a bougie) there is an obscuration of the usual auscultatory bruit we may assume that the c. t. is occupied by some inflammatory product or the space compromised by swelling or proliferative thickening of the mucosa.

So much for the diagnostic use of catheterism. It also aids us in our prognosis in so far as we can determine absolutely or approximately the pathological conditions which obtain.

Let us now consider briefly the therapeutic indications for Eustachian catheterization.

1. One of the principle indications for its use and in the patient before us is a sense of fullness and pressure with tinnitus and deafness. These symptoms are usually due to disturbance of the equilibrium of atmospheric pressure in the middle and external ear from defective ventilation of the c. t. by way of the E. t., giving rise to diminished air tension and consequent hyperæmia *in vacuo* with more or less collapse of the m. t., and consequent involvement of the apparatus of hearing made manifest by impairment of the aerial conduction of sound.

2. In acute otitis of the middle ear, as soon as the acute pain has been relieved by the usual treatment, the air douche is indicated. Where the otitis is unilateral, catheterization is to be preferred to Politzerization. Catheterization secures perviousness of the E. t., establishes the equilibrium of atmospheric pressure, thereby relieving tension of the m. t., the tendon of the tensor tympani muscle, also chain of ossicles and undue pressure on the labyrinthine windows; it disperses and displaces intratympanic exudations *via* the E. t. into the pharynx, or in the presence of a spontaneous or artificial solution of continuity of the m. t., into the external meatus; it establishes normal intra-tympanic pressure with consequent reduction of hyperæmia *in vacuo*, absorption of exudation and by virtue of what might be appropriately called aural massage, viscid mucous

and plastic exudates are displaced and removed from the immediate vicinity of the oval and round windows and foot plate of the stapes which tend to more or less compromise the function of the apparatus of hearing. Plastic exudations are prevented from becoming organized and forming bands of adhesions between the m. t. and inner wall of the c. t. or immobilizing the maleo-incudal incudo-stapedial joints.

3. In chronic catarrhal otitis of the middle ear it forms the most important factor in the treatment. The rationale is the same as that mentioned in acute otitis. Perhaps the element of mechanical pressure (aural massage) is of greater moment in the treatment of the chronic forms of otitis media, especially where there is much swelling or proliferative thickening of the tympanæ mucosa. It prevents the fixation of the chain of ossicles and secondary tympanic membrane (the membrane covering the round window) by connective tissue proliferation; it also prevents stenosis of the ostium pharyngeum and ostium tympanicum of the E. t. as well as in its continuity.

4. In deafness and tinnitus caused by the above mentioned pathological conditions, it is the only treatment that will prove of any avail. If it does not cure the deafness and tinnitus it will most certainly in the majority of cases relieve them, and prevent rapid progressive impairment or entire loss of hearing.

5. In acute-suppurative otitis of the middle ear catheterization and careful inflation may induce dispersion and absorption of sero-purulent exudate without perforation. Where, however, there is a perforation, the purulent secretion is displaced into the external meatus from whence it is removed by irrigation with a $\frac{3}{4}$ per cent. solution of sodium chloride or a 2 to 3 per cent. solution of boric acid, or by pledgets of borated cotton, *secundum artem*. It furthermore establishes the desirable intratympanic conditions which favor subsidence of hyperæmia and stimulates absorption of abnormal exudations.

6. In chronic suppurative otitis the same indications obtain as in the acute form, the rationale being the same. In addition, catheterism also furnishes the means for irrigating the c. t. by way of the E. t., as recommended by Schwartz, *loc. cit.* 194.

You ask, how soon should inflation be repeated?

As a result of clinical experience we find that the improvement after the first few catheterizations (that is in otitis media chronica) usually lasts from a few to 24 hours and recedes again. It is therefore advisable to repeat the inflation, indeed before the benefits of the preceding one have entirely disappeared, otherwise your patient would remain in a condition of *statu quo* or the improvement would be at least very slow. It is advisable to inflate daily for five or six days, or until such time as the improvement is more or less permanent, when the interval can be prolonged according to the progress or exigencies of the case. Therefore, in the chronic forms of Otitis media catarrhalis and suppurativa you must continue in this line of treatment for a long time, or as long as the pathological conditions that obtain compromise the sense of hearing or the integrity of the temporal bone.

In this connection I wish to call your attention for a few moments, to the contra-indications of

³ C. t. stands for cavum tympani.

⁴ M. t. stands for membrana tympani.

Eustachian catheterizations, and will divide them for more convenient study, into absolute and relative.

Absolute.—1. When there is ulceration in the nose or naso-pharyngeal cavity with or without tendency to hemorrhage, on account of the danger of septic infection. 2. hyperpyrexia. 3. Acute otitis complicated by acute pharyngitis and severe otalgia. 4. Emphysema of pharynx or larynx.

Relative.—1. Early childhood. 2. Senility. 3. Neurotic conditions. 4. During convalescence where there is great nervous prostration.

As to the technic of the procedure you know, gentlemen, that the pharyngeal orifice of the E.t. is located on the lateral wall of the naso-pharynx, nearly on a line with the inferior meatus of the nose, and that between the posterior lip of the ostium (also called the salpingo-pharyngeal fold) and the posterior wall of the naso-pharynx is a depression called the fossa of Rosenmüller. If the distance from the anterior nares or the posterior wall of the pharynx to the t.o. was uniformly a fixed one (which, however, is not the case) there would be no difficulty in finding it by means of a fixed scale on the catheter. Therefore, we proceed after a method (of which there are a number) that establishes a fixed point or landmark as a point of departure for the *maitre d' tour*.

The method that is taught in this clinic is known as the modified Kramer or Gruber method. The patient should be seated well back in a chair with body erect. It is desirable to have the patient blow the nose so as to cleanse nasal passage and to moisten the same.

The catheter having been scrupulously cleansed and sterilized, make sure that it is pervious by forcing air through it from the air bag (not by the mouth for that would not be aseptic) then adjust the auscultation tube as noted; place your left hand on the patient's forehead and with the thumb raise the tip of the nose; grasp the catheter delicately at its proximal end between thumb and index finger of the right hand holding it nearly perpendicularly, with the beak resting at the outer side of the floor of the vestibule, make an upward and forward motion carrying beak over the muco-cutaneous fold (the junction of the vestibule and nasal floor proper) at the same moment bringing the catheter to a horizontal, on a plane with the floor of the inferior meatus and continue the forward motion *with beak hugging the floor* until it reaches the naso-pharynx and you feel the resistance of the posterior pharyngeal wall; the catheter, with the indicator ring pointing directly downward and on a horizontal plane, is then drawn forward until the resistance of the soft palate is felt, when without hesitation it is turned outward and upward through the arc of a circle of about 135°, so that the indicator ring is on a line with the outer angle of the eye, or at an angle of 45°, when the beak of the catheter will usually glide into the t.o. The latter movement is aided somewhat by the contraction of the palatal muscles which, so to speak, lifts and rides the distal end of the catheter toward the t.o.; then, sliding left hand downward over forehead (not raising the hand from its support) grasp the catheter firmly between the thumb and index finger to prevent motion or rotation on its axis while making connection with the tip (see Fig. 1, c) on the Lucae air bag, at the same time keeping the tips of the remaining fingers fixed against the glabella as a

fulcrum. On compressing the bulb and filling the second balloon moderately with air the auscultation tube will at once determine the success or failure of the manœuvre.

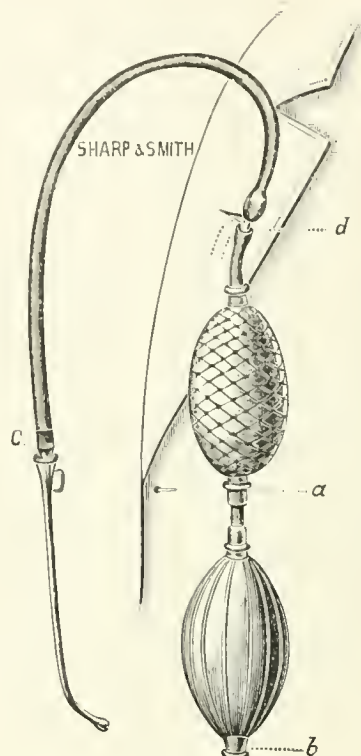


Fig. 1.

I will in this connection, without comment, mention in brief some of the other methods of procedure.

In the Lowenburg method you proceed as in the one before mentioned, until the beak of the catheter meets the resistance of the posterior pharyngeal wall, when it is rotated inward through the arc of a circle of 90° and brought forward until the concavity of the curved distal end meets the resistance of the posterior margin of the septum nasi (which in this method is the landmark), it is then rotated downward, outward and a little upward, describing a little more than a semi-circle, with indicator ring at same angle as in the previous method.

In Kuh's method, the beak, after meeting with the resistance of the posterior pharyngeal wall, is turned outward into the fossa of Rosenmüller; it is then brought forward until the resistance of the posterior lip of the t.o. is felt, when it is drawn gently over the lip or fold into the t.o. By this manœuvre there is more or less danger of injury to the mucous membrane sufficient sometimes, to entail the serious consequence of emphysema, especially where this landmark is unusually developed. The following method of Bing is an improvement on the latter. You will proceed as in the previous method until the posterior lip is plainly felt, which can be more easily discerned, by carrying the proximal extremity of the catheter toward the septum, when it will be noticed that on slight traction, the beak being directed slightly downward, that it can be made to glide easily downward and around the posterior lip, and circumducted, so to speak, into the t.o. The greater the development of this land-

mark (the posterior lip) the easier and more certain is catheterization by the Bing method.

Gentlemen, you must not forget that familiarity with, and dexterity in these methods of procedure are absolutely essential to success; that that method is the most desirable, that accomplishes catheterism with ease and without pain, "tuto, cito et jucunde."

As you become expert in the manœuvre you will not confine yourself to any particular method, but will proceed more or less unconsciously and independent of any special landmarks, as after the method of Boyer or Gairal, in which the catheter is passed along the floor, being held somewhat obliquely so that the convexity of its distal extremity is upward and inward and the concavity downward and outward, until the distal end reaches the nasopharynx when it is turned outward and upward into the tubal orifice.

A knowledge therefore of the topography of the nose and naso-pharynx and a practical experience in the procedure are the only means that will insure success.

705 Venetian Building.

EYE TROUBLES WHICH CONSTITUTE A FRE- QUENT SOURCE OF HEADACHE, VER- TIGO AND NAUSEA, AND OTHER NERVOUS DISORDERS.

Series of four lectures delivered at the Fourth Special Course of the
Chicago Polyclinic.

BY F. C. HOTZ, M.D.,
PROFESSOR OF OPHTHALMOLOGY.

LECTURE II.—STRAIN OF THE OCULAR MUSCLES IN BINOCULAR VISION.

Second Group:—The ocular affections to which I wish to invite your attention to-day, create disturbances in the nervous system also by strained muscular action. But while a person with abnormal refraction may suffer from nervous symptoms whether he sees with one eye or with both, the group of affections now before us can trouble the person only when he uses both eyes together. *The nervous symptoms caused by this second group are due to unusual demands upon the ocular muscles to maintain binocular vision.*

Binocular vision is only possible if the visual line of each eye (i. e. the straight line drawn from the macula through the center of rotation of the eye) connects the macula with the object, or as it is usually expressed, both eyes must be turned directly towards the object. The slightest deviation of the one visual line from the object disturbs binocular vision by causing diplopia, as you may easily prove to yourselves by a very simple experiment. Place one finger very lightly on the upper lid of your left (or right) eye, and then make with this finger the faintest pressure upon the eyelid while you are looking steadily at one object. You will at once see the object double, because the pressure upon the lid is transmitted to the eyeball, causing a slight displacement which faint though it be is sufficient to change the direction of its visual line and thus to cause double vision. When the object is far away from the eyes, the direction of these visual lines is so slightly convergent that it is customary to speak of them as being parallel. The nearer the object approaches the eyes, the more convergent must be the visual

lines; and hence in looking around from one object to another, we are constantly changing the position of our visual lines. The movements the eye-balls have to make for these adjustments of the visual lines, are effected by the actions of the four straight and two oblique muscles. Under normal physiological conditions, these muscular forces are so well balanced that when the muscles are in a state of physiological relaxation the visual lines are practically parallel; if, therefore, we look at distant objects, these muscles are pretty well at rest, and they become active in proportion as the object gets nearer to the eyes. And as we frequently change looking from near to distant objects, the ocular muscles undergo so frequent changes of tension and relaxation that they can easily meet the demands imposed upon them in the interest of binocular vision.

Now in the affections which interest us to-day, this physiological equilibrium of the ocular muscles is slightly disturbed; the visual lines are not parallel when the muscles are in a state of perfect relaxation, but the visual line of the one eye is slightly turned upwards or downwards, convergent or divergent. But these departures of the visual lines from parallelism are so slight that they do not cause any manifest deviation (as in strabismus) and for the sake of binocular vision can be and are corrected, and the parallelism of the visual lines is restored by persistent special efforts of one or the other of the ocular muscles. For instance, if in the state of muscular rest my right eye was just a little convergent, my sight would be confused in a peculiar way in looking at a distant object, because its image would not be received exactly on identical points of the two retinæ; in the left eye the image would be on the macula, but in my right eye it would be on the nasal side of the macula. And while the left eye would see the object in its true position, my right eye would see it slightly shifted to the right, according to the laws of projection; but the shifting would probably not be great enough to produce distinct double images; the two images would neither be distinctly separated nor exactly blended, they would overlap each other and make the object appear to me in very uncertain contours, like blotted type. To get rid of this very distressing state of vision I must bring the visual line of my right eye to bear directly on the object, and I should accomplish this by inducing the external rectus of my right eye to make a special effort to turn this eye just so much that the image of the object is thrown upon the macula. The visual lines of both eyes then connect the object with the macula, and binocular single vision is restored. But it is restored at the expense of the external rectus of my right eye which is obliged to keep up a certain degree of tension to oppose the natural tendency of the eye to turn in. And as this extra tension had to be kept up all day, it would not be surprising if sooner or later this strain upon the external rectus muscle would lead to similar nervous symptoms which, as you have learned in our first lecture, are so often caused by the strained efforts of the ciliary muscle. And so we find it in reality: headaches, neuralgia, vertigo, and the whole train of neuroses indicative of an unusual and excessive consumption of nerve force are frequent complaints of persons whose eyes show these peculiar disturbances of the muscular equilibrium.

Dr. G. T. Stevens¹ has introduced a series of new terms for these muscular anomalies; and since his terms have been adopted by other writers, and also by the ophthalmological Section of the American Medical Association, I will briefly explain them. The state of perfect muscular equilibrium is called *Orthophoria*, and all those disturbances of equilibrium which favor the deviation of the one visual line from the other, but in which this tendency is opposed and the actual deviation prevented by special muscular efforts, are grouped under the general term *Heterophoria*. According to the direction in which the deviating tendency may exist, heterophoria may be subdivided into:

1. *Esophoria*.—The visual line of the one eye has a tendency to turn inward (convergence).

2. *Exophoria*.—The visual line of the one eye has a tendency to turn outward (divergence).

3. *Hyperphoria*.—(Right or left)—The visual line of the one eye has a tendency to turn upward.

As these faulty tendencies are counteracted by muscle strain as long as binocular vision can be maintained, the existence of heterophoria in any given case can only be revealed if binocular vision is suspended by some artificial means. A very simple and inexpensive contrivance for this purpose is Dr. Maddox's glass rod, a small piece of a glass cylinder set in a slot of a round metal disc. If you place this glass rod before your right eye and look at a light, you will see a long streak of light, while with your left eye you will see the natural shape of the flame. If the glass rod stands vertically, the light streak is horizontal, and if the rod stands horizontally, the streak is perpendicular.

Now for binocular vision, both eyes must receive identical images on the macula; but a light streak and a flame are so different images that they cannot be united into one visual perception. Binocular vision, therefore, is suspended by the glass rod; but as soon as binocular vision is made impossible it matters not whether both visual lines are directed towards the light, or whether one visual line is turned in another direction. We therefore see that under the influence of this glass rod any special effort which may have been made in the interest of binocular vision to prevent the deviation of the visual line, is abandoned, and the deviation if the tendency therefore exists, is allowed to take place. In orthophoria the streak is seen to pass right through the middle of the light; but if heterophoria exists, streak and light are seen separated, and the position of the

cast upon the lower portion of the retina (below the macula) of the right eye; you will see two lights, and the one seen by the left eye will appear in its true place (at *l*) and the one seen by the right eye will appear above the other (at *k*). Binocular vision being suspended by the prism, any existing heterophoria will reveal itself by the relative position of the double images, as I shall show to you presently. For this prism test Dr. Stevens has devised this instrument called *phorometer* with which you can not only detect very quickly the existence of heterophoria, but also very accurately determine its kind and degree.

Let us now briefly consider the principal forms of heterophoria.

ESOPHORIA.

The visual line of one eye has a tendency for convergence.

Tests.—1. The vertical light streak produced by the glass rod is seen to the right of the light if the rod is before the right eye, and to the left of the light if the rod is before the left eye.

2. The double images (produced by the prism with its base down before one eye) are not in perpendicular line, but the upper image appears displaced to the right if it belongs to the right eye, or the left if it belongs to the left eye.

To get the images on a vertical line, or to make the light streak run straight down through the flame, you have to place a prism with its base towards the temple, before one eye. The number of the prism which brings both images in a perpendicular line indicates the degree of esophoria.

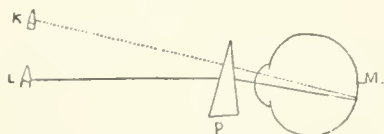
In esophoria, binocular vision is maintained by the constant tension of the external recti muscles. In moderate degrees relief may be obtained from the use of prismatic spectacles; in the higher degrees of esophoria, carefully graduated tenotomies of the internal recti muscles correct the deviating tendency.

Prominent among the nervous symptoms induced by esophoria, is severe pain in the back of the head. Sometimes this occipital headache comes after reading with such regularity that the patient naturally concludes there must be some relation between the eye work and headache. In many cases, however, the patient experiences no trouble in reading, etc., and has very good sight; but a visit to a picture gallery or a theatre, the attendance at a lecture-room or in church, is invariably productive of a severe headache.

Let me briefly relate to you two cases to show the different effect esophoria has on different people, and also the different means by which relief can be obtained.

Case 1.—P. O., 17 years of age, has been suffering from temporal and occipital headaches more or less for years, but since he has entered college the attacks have become so frequent and severe that he was often obliged to interrupt his studies; he had noticed if he read in the evening he would always wake up with a headache in the night, and if he studied for one hour in the afternoon, he would usually have to suffer for it in the evening. The headache was often preceded by a numb feeling in the fingers which gradually extended up the arms to the shoulders. At the age of 8 years he had been operated upon for convergent strabismus of the left eye. His vision was excellent ($\frac{20}{20}$) and the refraction emmetropic, with accommodation fully paralyzed. At first we found esophoria

FIG 4



streak (whether above or below, to the right or left of the light) will determine the kind of heterophoria.

Another way of suspending binocular vision is to induce diplopia by means of prisms. A prism deflects the rays of light towards its base. If you place a prism (*p*) with its base downward, before one eye, for instance, before the right eye, the rays from this candle light (*l*) are deflected so that its image is

¹ Functional Diseases, their causes and treatment. New York, 1887.

2° but in a few days it gradually increased to 10°. Graduated tenotomy of both internal recti produced orthophoria, and as he reported six months later, relieved him permanently of the headaches and other neurotic symptoms.

Case 2.—Mrs. F., 23 years old, has no trouble in reading except that her eyes begin to burn and smart; but has been troubled with violent sick headaches all her life; never went to the theatre but what toward the end of the play her head would ache.

Examination, Jan. 28; esophoria 7°; good vision ($\frac{20}{20}$); under cocaine and homatropine, hypermetropia 2 D, and esophoria 14° (!).

Feb. 1.—Had severe headache after examination with the homatropine. With H. corrected still Es. 7°. *Ord.* prism 3° for each eye.

Feb. 9.—Several evenings in theatre, and no headaches.

March 15.—Glasses continue to give perfect comfort.

EXOPHORIA.

The visual line of one eye has a tendency for divergence.

Test.—1. The glass rod shows the vertical light streak to the left of the flame if the rod is put before the right eye, and to the right of the flame, if the rod is put before the left eye.

2. The vertical double images produced by the prism, are so displaced that the higher image appears to the left if it belongs to the right eye, and to the right if it belongs to the left eye.

A prism placed with its base toward the nose before one eye can get the two images in a vertical line, and also make the light streak pass through the flame. The value of this prism represents the degree of exophoria.

The deviating tendency of the visual lines is opposed by the requisite constant tension of the internal recti muscles. Its relief requires either the appropriate prismatic spectacles, or carefully graduated tenotomies of the external recti muscles. Exophoria is preëminently embarrassing in near work, causing quick fatigue, and pain in the eyes and head, in fact that train of symptoms usually mentioned in the text books under the heading "Muscular Asthenopia."

A very good clinical illustration of exophoria is the following case: In August of last year, a physician 34 years old, from Iowa, came to get relief for these symptoms: A constant tight feeling across the forehead; when looking at any object he had a desire to close his eyes to rest them; could read but a few lines, and scarcely able to write prescriptions because "the letters chase each other." The examination revealed normal refraction; perfect vision ($\frac{20}{20}$) and 2 degrees of exophoria. A prism of 1° for each eye gave such instant relief that the doctor wished to go back home with them at once, promising to report, or to return if the glasses should fail to give permanent relief. But he is not likely to come back, for on Feb. 28 he wrote this: "I could not live without my glasses now, they give me perfect comfort; can't be without them. If I lay them aside for a moment my eyes and forehead begin to pain again. But when I wear them there is no pain whatever."

HYPERPHORIA.

The visual line of one eye has a tendency to turn upward.

Tests.—1. The horizontal light streak seen through the glass rod appears above or below the flame; and,

2. If diplopia is produced by a prism placed with its base toward the nose before the one eye, the two images do not appear on a horizontal line (as they would in orthophoria) but the right or the left image stands higher than its partner. The lower image always belongs to that eye whose visual line is directed above the visual line of the other eye; and a prism placed with its base down before that eye will bring the two images in a horizontal line (and also make the horizontal light streak pass directly through the middle of the flame.) This prism represents the degree of hyperphoria.

Hyperphoria is by all means the most interesting of all the heterophoric conditions, because even very slight deviating tendencies of the visual lines in the vertical direction are very embarrassing to binocular vision, and frequently induce very troublesome nervous symptoms. Preëminent among those is vertigo and a peculiar confusion or uncertainty of vision, which makes walking in a crowded street a very difficult and dreaded task for such people. Some patients compare this visual vertigo with the sensation experienced on board of an ocean steamer; others only notice a peculiar unsteadiness and haziness of the horizon when they look with both eyes, while it appears perfectly clear and sharp when viewed with either eye alone. Some have a more or less constant feeling of a tight band around the head; others are tortured by frequent attacks of violent occipital headache.

How embarrassing a slight degree of hyperphoria may be, I cannot illustrate any better than by relating to you the following observation: In September, 1889, H. K., 34 years old, an actor, consulted me at the suggestion of his physician. Since two years he had been annoyed by frequent attacks of vertigo, which were extremely embarrassing to him. When on the stage he felt as if his body was swaying from side to side, and when he had to make his exit in a certain direction, he had to fix his eyes right to the spot, strain every muscle to walk straight toward the place where he was to leave the stage. He was always afraid the audience would notice the uncertainty of his gait, and think he was intoxicated. He was a man of splendid physique, and a number of competent physicians who had examined him from head to foot, inside and outside, could find no flaw in his organization. His eyes showed normal refraction, and remarkably good vision, ($\frac{20}{20}$); but there was $\frac{1}{2}$ ° of hyperphoria of the L. E.; and when this was corrected by $\frac{1}{2}$ ° prism, he was quite amazed by the wonderful change of sensations it produced. Everything appeared so steady and clear; his head felt as if a heavy weight had been lifted from it, and every trace of vertigo had disappeared.

In dealing with these heterophoric conditions, we must not lose sight of the fact that a weak state of health, poor nutrition, nervous prostration by disease or overwork, may weaken the ocular muscles so that they are easily tired in the performance of their regular daily work. Their actions become unsteady, jerky and easily simulate heterophoria of one kind or another. But if you examine such eyes on different days (and in all these muscular affections, you should never make your diagnosis on one single examination) and find each examination shows a very different degree or even a different kind of hetero-

phoria; you will understand that this is not a case of true heterophoria. Another point we must not overlook, is the fact that apparent heterophoria is often associated with errors of refraction, and disappears when these errors are corrected by suitable glasses.

But after all these cases have been carefully sifted out, there still remains a certain number (like the cases reported in this lecture) in which the most searching examination can detect no other disturbance in the eye but heterophoria, and in which the correction of this muscular disturbance is promptly followed by the complete relief of existing disturbances in the nervous system. I wish to impress this fact upon your mind with particular emphasis, because some writers, utterly disregarding these clinical facts, are trying to make their readers believe that heterophoria has no bearing on asthenopia or nervous symptoms, but that these complaints are always caused by anomalies of refraction, and relieved by the correction of the refractive errors.

NOTES ON THE EUCALYPTUS.

BY W. C. TYNDALE.
OF CHICAGO, ILL.

The Eucalyptus tree is a native of Australia and Tasmania, where it forms large forests. There are about 140 species described, but they vary extremely, different kinds of leaves being produced on the same tree, thus presenting distinct specific characters, and varying also in the nature of their barks.

In Tasmania and Gippsland Victoria, they grow to an immense height, often exceeding 400 feet. Their naked and branchless stems of a dirty white color look like natural columns. These are often blackened by the fires of the natives or wrung by the settler's axe, when they afford a grand but dismal spectacle, as one speeds along in the train; in some districts square miles of country is passed in which the forests have been wrung preparatory to settlement, and in some cases for no obvious reason, as the land is unfit for occupation and there stand those former monarchs of the forest like giant skeletons, sapless, lifeless looking, dismal and forlorn in the midst oftentimes, of a luxuriant undergrowth.

The trees are named usually according to the nature of their bark, which they shed instead of their leaves, such as Stringy Bark (*E. Obliqua*), Iron Bark (*E. Sideranylon*), Blue Gum (*E. Globulus*), Peppermint tree (*E. Amygdalina*).

The wood of some is very hard and durable, and so heavy as to sink in water. Many yield a kind of resin or gum, such as *E. Resinifera* and *E. Amygdalina*. A volatile oil of wonderful medicinal qualities is also produced from the leaves of various kinds but more especially from that known as the *E. Amygdalina* which is the most productive, and yields nine-tenths of the oil of commerce, though not always placed in the market under its own name.

This arises from a certain amount of notoriety gained for the *E. Globulus* abroad owing to the fact that it is the easiest of the species to acclimatize. As a matter of fact, however, there is scarcely any *E. Globulus* distilled in Australia. *E. Maunifera* yields sweet secretions analagous to manna. *E. Gunnii* furnishes a liquid that ferments and forms a kind of beer. They all produce abundance of seed,

which vegetates freely and becomes naturalized in various countries.

THE GIANT EUCALYPTUS TREE.

The *E. Amygdalina* or Giant Eucalyptus, called "Wangara" by the natives, is also known as the Peppermint tree. This is one of the most remarkable and important of all the plants in the whole creation.

Viewed in its marvelous height when standing forth in its fullest development on the slopes or within the glens of mountain forests it represents probably the tallest of all the trees of the globe. Regarded as a hard wood tree of rapid growth it ranks foremost, and contemplated in respect to its yield of volatile oil from its copious foliage it is unsurpassed and perhaps unequalled by any tree in the world. These qualities have made it become generally known and much through the exertions of Baron Von Mueller, this tree is now being introduced abroad with good results in countries neither subject to severe frost or intense moist heat. It assumes under different climatic and geologic conditions, various forms. Thus, in the ravines of the cooler ranges it attains its greater height, combined with a perfect straightness of stem, while the bark strips so completely as to render the huge stem quite smooth and almost white.

In the more open country it is much smaller. Under these conditions it is called a "Peppermint Tree" in Victoria and Tasmania, and a "Messmate Tree" in New South Wales.

In Victoria this tree often exceeds 400 feet in height. Such trees are found on the Black Spur, Upper Yarra Yarra, and Upper Goulbourn. A fallen tree on the Dandenong Ranges measured 420 feet. The length of the stem up to the first branch was 295 feet. The diameter of the stem where it was broken 365 feet from the root was three feet.

A still thicker tree in the same locality measured 53 feet in circumference three feet from the ground.

A tree near Mount Wellington, Tasmania, has been found which measured 12 feet in diameter, 220 feet from the ground. Another tree was found 130 feet in circumference at the base. Within a square mile 100 trees could be counted with a circumference of at least 40 feet. At the foot of Mount Baw Baw, Victoria, is found the highest of the giant trees of Australia. This monster is 471 feet high, and another on the Cape Otway ranges is 415 feet in height. The final height is sometimes attained by a single branch pushing skyward.

It is a grand picture to see a mass of enormous tall trees of this kind with stems of mast-like straightness and clear whiteness so close together in the forest as to allow them space only towards the summit to send their scanty branches and sparse foliage to the free light.

The distillation of the oil was first initiated by Baron Von Mueller. *E. Amygdalina* yields more oil than any of the other varieties, and is therefore almost solely employed for the purposes of distillation. It is also one of the best for subduing malarious effluvia in fever regions, although it does not grow abroad quite so well or quickly as *E. Globulus*.

The respective hygienic value of various trees may to some extent be judged by the percentage of oil in their leaves as stated below.

	Per cent. of Oil.
<i>E. Amygdalina</i>	3.313
<i>E. Oleosa</i>	1.250

	Per cent. of Oil.
E. Leucoxylon	1.060
E. Goniocalyx . . . . .	.914
E. Globulus . . . . .	.719

The lesser quantity of oil in E. Globulus is compensated for by the vigor of its growth, and early copiousness of its foliage. It readily adapts itself to other climates and hence abroad nearly all varieties of the oil are known as Globulus. During the last twenty years the Blue Gum has come into high repute as a sanitary tree. A high authority states that the sewage system of large towns in warm climates would be simplified if each house had the ever green gum tree in the back yard. The disinfecting and deodorizing virtues of the tree are unquestionable.

Flesh of any kind is as well preserved by eucalyptus as by creosote, while beef sprinkled with it will dry hard without putrefaction. It is fatal to bacteria and other microorganisms. It may be injected into the veins and arteries of cadavers for purposes of preservation. It is also a good admixture in dressing gangrene.

SOCIETY PROCEEDINGS.

American Electro-Therapeutic Association.

Second Annual Meeting, held in New York, October 4, 5 and 6, 1892.

WILLIAM J. MORTON, M.D., PREST.

FIRST DAY, OCTOBER 4—MORNING SESSION.

(Continued from page 48.)

2. *Electrolysis.* By this term is meant not alone the products of chemical decomposition at the electrodes but also the action of the current in its intrapolar course. There can be no doubt that every current, however small, acts upon the tissue included between the electrodes. In the first place there would exist no current, no conduction, unless the electricity moved *with* the atoms of matter and not through and among them. This is the essential feature of electrolytic conduction as in the fluids and semi-fluids of the body. Therefore, the atoms move as long as a current passes.

Again, the phenomenon of internal polarization and counter electromotive force (as high as one-fifth of a volt) demonstrates the intrapolar activity of the continuous current. The effect of this action upon a tissue, for instance a muscle, is proven to be a great diminution of its excitability and a profound alteration in its structure, microscopically demonstrable.

3. *Cataphoresis.* The fluids of the human body, varying according to their electrical resistance, move with the flow of the current from the positive to the negative pole.

Electrolysis, chemically and cataphoresis mechanically alter the amounts and distribution of that very small percentage of salts essential to the nutrition and function of parts of the organism upon which they act and thus produce tissue changes, as in tumors and exudations.

4. *Vaso motor effects,* are too familiar to more than require mention.

Further objective evidence might be adduced such as the important action of electricity upon the pulse, upon the temperature and upon the secretion of urea and other end-products of metabolism.

Again, the evidence of clinical observation is of great weight.

But the time at my disposal and the limits of your

patience, forbid the further pursuit of this train of thought. The field is too broad a one for this brief treatment. I would like to have referred to the medical possibilities of electricity in its relations to microbes and microbe chemical products; to the recent attack upon electro-therapy as upon all therapy founded upon that recognized therapeutic measure known as "suggestion," but, as I have said, my time is too short and I will content myself with a mere reference to a line of work which lies before us.

Certain directions of investigation point to a field where electricity may play an important rôle in the cure of disease. To-day much attention is divided between an organization the most complex—the nervous system and one most simple—the animal cell. The former has long held sway as the great controller of those functional processes incident to the life and the activity of the organism, but the latter is found to possess distinctive capacities of its own which would suggest that in all that relates to the performance of vital functions it could act independently of the influence of the nerves. The capacity of an amœba to select nutrition appropriate to itself, of an intestinal epithelial cell to pick out fat globules to the exclusion of other material and of a leucocyte to attack and destroy a microbe are examples of this independent action. The natural history of animal cell life and the possibility of its modification by electricity is an inviting field for study. If the leucocytes in a living being may be anesthetized by chloral so that they are unable to do their work they may likewise be exhausted or revived by the electric stimulus. And what is true of the leucocyte is true of other animal cells, if not all, which go to constitute our several tissues. Who shall say that the primary impulse of a nervous centre is not initiated by a capacity in the nerve cell as individual as that exercised by the amœba, the epithelial cell or the leucocyte. Indeed, if this initiative capacity to perform certain work is not inherent to the cells of the nervous system we must retreat to an immaterial principle underlying the phenomena of nervous action and hypothecate a sort of metaphysical *nervi nervorum*. It is then to an effect upon the life history of the cells involved in a given morbid process that we may look to for well known remarkable effects of electricity upon nutrition and a consequent modification of the processes of disease.

It is not improbable that a final field of contest in the cure of disease is between the physical phenomena we term electric and the chemico-biological processes of metabolism exhibited by the animal cell—between electricity on the one hand, which in the human body, by electrolytic conduction, becomes a chemical process and the chemical processes on the other hand, which constitute life in the organism—chemistry against or in conjunction with chemistry. From this point of view, much of electro-therapy becomes cellular therapy, in which electricity is the active agency in producing results which in general we term nutritional; and the explanation of the cure of curable diseases is to be found in the tendency of palliation and cure to be measured by the degree of nutritive improvement effected. The electro-therapy of the future must include acute as well as chronic diseases. Paradoxically, we may put the statement, cure the patient's body and we cure his disease. It is upon this great and broad general principle and not solely upon specific local effects that I believe the future success and position of electricity in medicine must be based. May we not term this process electro-cellular therapy?

REPORT OF THE COMMITTEE ON STANDARD COILS.

As the Committee had been unable to formulate a report, the members were asked to express their individual opinions.

Dr. A. H. Goelet, of New York, said that the difficulties which they had to contend with were best understood by those who had endeavored to secure a perfect faradic apparatus for medical use. The manufacturers, with the exception of the Chloride of Silver Dry Cell Battery Co., of Baltimore, and the Galvano-Faradic Co., of New York, had evinced a disinclination to undertake the necessary experiments because of the expense which would be incurred. His own experiments however, had shown him that the suggestions made in his paper at the last meeting, were in the right direction. If such a coil were constructed and adopted, the results obtained by different investigators would be much more nearly uniform. The speaker proposed that the committee should report progress, and that they be continued for another year.

Dr. W. F. Hutchinson, of Providence, thought this proposition an excellent one. The members of the committee were receiving an astonishing number of inquiries from medical brethren showing a wide-spread ignorance of the subject of electricity, and matters are made still worse by the variability of the instruments at present at our disposal. The coils should be made of a definite length and resistance and the current operating it should have a definite strength.

The President suggested that the services of an electrical expert would facilitate the work of the committee, and added, that he thought it would be well to add the name of Mr. A. E. Kennelly to the committee. Suggestion approved.

Dr. G. Betton Massey, of Philadelphia, said that he had especially directed his attention to a consideration of the powers of the primary faradic current to contract muscle. In the course of his experiments, he had found that an Engelman faradic battery when tested on a very muscular myoma failed to produce the same amount of contraction which resulted when currents from other primary coils were tried. Four du Bois-Reymond coils in his possession act very differently, and these differences he thought were due to variations in the length of the primary wire, in the mass and length of the core, and in the character of the current interruptions.

The President said that there need be no surprise at the difficulty the committee found in pursuing their investigations, when one remembers that induction coils may be made varying from less than twenty vibrations per second, to one giving alternations of 20,000 per second, and producing a current, which, so far as is known, has no effect on the human system.

On motion of Dr. Hutchinson, the name of Mr. Kennelly was added to the committee.

Committee on Meters.

As none of the members were present, there was no report.

The Committee of Arrangements announced that the Association had received an invitation from the Electric Club to a reception given that evening in their honor, also an invitation to visit and inspect the Telephone Exchange.

THE USE AND ABUSE OF ELECTRICITY IN MEDICINE.

By A. D. Rockwell, A. M., M. D., of New York, formerly Professor of Electro-therapeutics in the New York Post-Graduate Medical School and Hospital, etc.

Anything that is used, can be abused. What we eat and drink and the air we breathe, are common and ever present examples of the folly and ignorance of man in the use of the good things of life, and in every direction the tendency is to abuse rather than to rightly use the gifts of nature. Activity without insight is the law that governs, and the result is that evolution of correct principles becomes handicapped in unnumbered ways. Now while this applies to many

departments of our art, as well as to other fields of investigation, it applies with especial force to the study and practice of electricity in medicine. Devolution or destruction accompanies and is a part of the general process of evolution, and it is a significant fact that this reverse process of devolution which should by this time have exhausted its ill directed energy is more active than at any previous time in degrading a field of research as fascinating and important as any in the whole range of medicine.

Now this clog or hindrance to the right appreciation and the right use of electricity does not emanate so much from self-confessed charlatans. With the advance of a better knowledge of the subject, the emoluments of their trade have been so curtailed, that with the advertising oculists and throat doctors of a quarter of a century ago, they form an insignificant and almost unrecognized factor in the line of this special work.

Neither do I allude to those members of the profession who, making no use of electricity themselves, honestly believe it to be of little practical value and discountenance its employment.

My remarks are suggested in remembrance of a far larger body—members of the regular profession who freely use electricity, and of a still larger number of the laity who either with or without advice make use of this agent as commonly and as confidently as they take their morning bath or daily friction.

I would here make one emphatic disclaimer, for when one advocates certain restrictions in the use of measures in which he himself is especially interested, he lays himself open to the charge of being a special pleader actuated by unworthy motives. I am far from believing that only those can use electricity with satisfaction to themselves or benefit their patients who have devoted years to its study and to the practical details of its application. I am sure that no physician is thoroughly equipped, who has not in his profession and always in perfect order, some form of electrical apparatus.

While engaged in the preparation of this paper I read in the daily press of a fatal case of opium poisoning. Four physicians gather at the house and recognize that the only hope of saving the patient, is the prompt and persistent application of electricity. Eager and prolonged search finally results in unearthing at a neighboring druggist's an old apparatus, which on trial proves inefficient, and the patient dies.

Possibly a life might have been saved had the proper appliance been at hand, with a knowledge of the necessary simple details of its application in such cases, for we all know that by the use of this powerful agent, artificial respiration can be continued for hours, until the paralyzing effects of the poison wears away.

Neither do I believe that in every case and on all occasions it is necessary that all applications be made by the physician, although I am confident that every medical man who has had experience in this direction, will agree that such self-treatment is usually unscientific and unsatisfactory and in many cases utterly impracticable.

The temptation on the part of the people to use electricity themselves, and on the part of the profession to allow them to do so, is very strong. The majority of physicians know little more of electro-therapeutics than their patients. Forgetting that it is not so much electricity that cures disease as the method of its employment, forgetting that there are various kinds of electricity in common use and many different methods of applications, every one of which is capable of various modification, forgetting that there are certain temperaments who do not bear electricity well, and upon whom the currents and methods employed must be studi-

ously varied during a course of treatment, in short, forgetting that electro-therapeutics considered as a science or an art is wonderfully complex and exacting, orders the patient to get a battery and try electricity. Now, to hold at this stage of its development such mean ideas of electro-therapeutic science is unworthy any intelligent mind and it should be the aim of the members of this Association to counteract such erroneous teachings. This is the more necessary because from its very nature electricity in its therapeutic relations is far more readily misunderstood than understood and abused than rightly used.

Any one can buy a battery of some sort, for the market is glutted with machines of the most inexpensive and worthless construction. Any one can readily learn to put it in action and apply the electrodes, and when this is done whether by physician or patient, it is too often with the understanding that what has been done is all there is to electrify. No matter how generally well equipped for his work every medical man acknowledges the necessity of preliminary training and an acquired experience before he can claim expertness in operative surgery, or in the various special departments of medicine, but in electro-therapeutics, not only the otherwise well educated physician but the veriest fool considers himself competent as soon as he has mastered the mechanical details of such ordinary induction coil or galvanic apparatus as may happen to be in his possession. Such assumption is the height of injustice both to the reputation and to the scientific development of the agent, and to the patient who has been deceived. The fault of the physician lies not in the use of electricity, even though he be no expert, but in the claim of a degree of knowledge and expertness that he does not possess. Precept should teach by example, and as a picture of genuine and frequent experience I have in mind two cases of infantile paralysis. In both of these cases there existed but the slightest evidence of muscular irritability, and the previous history and course of both were almost identical. The first of these cases was subjected to prolonged applications of the galvanic current with frequent interruptions, sufficiently strong to call forth the slight reactions that it was possible to obtain. The result was that muscular irritability became entirely extinguished, the limbs that might under judicious methods have regained a certain power of locomotion became hopelessly paralyzed. Here then we have evidence that sudden galvanic shocks, whatever useful purpose they may sometimes serve, are often dangerous in the extreme. Their effects are in the main undue stimulation, and in their relation to nutrition, destructive, rather than reconstructive.

The continuous passage of the current on the contrary, while in a certain sense stimulating in its effects, combines influences that are sedative and tonic, and preëminently reconstructive, and is alone equal to the task of resisting progressive degenerative changes in nerve and muscle.

The second case, treated patiently by the continuous action of the current, without any frequent attempt at first at muscular contractions pursued an entirely different course.

Very gradually, the muscular contractions became stronger and stronger the limbs warmer and larger, until finally the patient regained a considerable and permanent control over the paralyzed members. I here present to you a patient who is an excellent example, on the one hand, of misdirected energy, that activity without insight to which I have alluded—and on the other, of the benefit to be derived by a method which for the want of a better name I have termed, the cumulative effects of electricity. Last November he was caught by a slowly moving engine, dragged along the ties, and sustained fractures of the clavicle, hu-

merus and several ribs. Traumatic paralysis of the radial, median and ulnar nerve supervened, with complete motor and partial sensory paralysis of the right forearm and hand and in a less degree, of the arm and shoulder. He was for three months treated electrically by his attending physician who used the faradic current only, having the patient hold the electrodes in his hands. On one occasion he went away and forgot all about the patient and allowed a strong current to pass for nearly an hour. The paralysis failed to improve under such barbarous treatment, and when he fell under my observation in May last, there was such a profound atrophy and loss of muscular irritability, associated with degenerative reactions, that I gave a discouraging prognosis. You observe however, the very excellent results of the method adopted. He at once began to improve and improved rapidly, and is now able to engage in manual labor with almost as much efficiency as ever. The increased efficiency of the galvanic current when it is applied for some time along the course of a nerve without interruption as was done in this case is a most interest phenomenon. Energy is undoubtedly stored, possibly in the same sense, although not in the same demonstrable way that chemical action is stored in the ordinary storage batteries. The result is seen not only in increased power in deflecting the needle of the galvanometer, but in overcoming conditions of disease. One factor accounting for this increase as must be quite evident, is the better conductivity of the tissues gradually taking place at the seat of the recombination of the current—a result due to congestion of the skin and adjacent parts under the electrodes. That this explanation however of the increasing strength of the current when continuously passed through living tissue is but partial, can readily be demonstrated.

I apply the current from a given number of elements to the arm and forearm, and seven milliamperes are immediately registered. In two minutes there is an increase of one degree, in two minutes more an additional degree, and in eight minutes twelve milliamperes are registered. That this extraordinary increase in strength is not caused by improved conduction simply, I soon satisfy myself by applying vigorous friction to the other arm, and when the congestion is as intense as that produced by the electricity, the electrodes are applied. Instead of seven, the meter does indeed immediately register ten milliamperes, but it is not until several more minutes have elapsed that the additional two degrees are registered.

To analyze the molecular disturbances that evidently take place during the passage of the galvanic current is a labor of the greatest difficulty, and the phenomenon is not yet thoroughly understood.

Evidences, however, of the chemical action of electricity as it passes through the tissues are not wanting, and the sudden increase of strength is perhaps due to the electrolytic or polarizing action of the current, exciting a secondary current in the living body, similar to what is observed in a reservoir or secondary pile.

It would perhaps be too much to assert, that any intelligent physician using electricity is unacquainted with the fact that there are three main divisions of the subject, namely: the static, galvanic and faradic forms of electricity, although it is certainly true that the majority have very little appreciation of the wide difference in their physiological and therapeutical effects. How many, however, are aware that the induction coil itself is so differently and variously constructed as to yield qualities of current that for all practical purposes are as separate and distinct as are the galvanic, faradic or static forms of electricity?

And of the number who have knowledge of these facts of physics, how few there are who have given any adequate

consideration to the differential indications for their use.

To correctly differentiate between the various manifestations of electrical energy and then to decide upon the proper method of its administration, are questions of the highest importance and their solution beset with difficulties, and place electro-therapeutics in the front rank of scientific studies. Polar effects and current directions are again two factors in the production of therapeutic results that demand more careful investigation. No one would now assert that in gynecology or in electro-surgery it was a matter of indifference which pole was used, but it is not uncommon to hear the expressed opinion, that in medicine it makes but little difference which pole is used or which direction of the current. In the midst of the theories more or less fanciful that have accompanied the magnificent discoveries of Galvani and Volta, Mattenci was able to bring forward evidence of the chemical action of the current on organized tissue. His doctrine, though thoroughly scientific and based on experimental facts, had to make way for the classical yet confused hypothesis of the Germans—the theory of electrotonos—a mere physiological theory having no relation to anatomy or histology. Two of the most celebrated disciples of Du Bois Reymond, the author of the classical physiological theory of electrotonos, Erb and Eulenbourg, had long experimented according to his ideas, in cities far apart.

Starting from identical principles, the result of their long years of study proved to be absolutely contradictory. This was rather embarrassing to the sanction of the theory. Looking for an intermediary capable of explaining the discord they referred the matter to Helmholtz, who explained the difference by showing that if you apply the negative pole at any point whatever there will result at this point an increase of excitability, but that for reasons of a purely physical order, there can be in the vicinity of the negative pole a positive point. If therefore you excite a nerve near its catelectrotonic point, you may chance to light on an anelectrotonic zone—a circumstance that fully explains how it became possible for two experimentors starting from the same premises to arrive at different results. It is quite certain that in indicating the formation of a zone with an opposite name around the excited point, Helmholtz, as did Mattenci, had in mind the chemical effects of the current, but in accepting his theory his countrymen have transformed a physiological action based upon electrolytic changes into phenomena the explanations for which were fanciful and unscientific.

I call attention to these old facts of history in order to emphasize the strong physiological and chemical basis for the study of differential polar effects in therapeutics. My own more recent investigations along this line greatly strengthen me in the belief that there are still richer veins to be worked in electro-therapeutics than have even yet engaged our attention. There can be no question as to the physiological significance of the complete elimination of one or the other pole in direct experimental tests, and clinical results, as I have had occasion to observe, are in more or less accord with the results of physiological experiment. Much fault is found with electricity, or rather with those who advocate its use, because so much is claimed for it. These claims are, however, based upon the demonstrated fact that it is a many-sided weapon. It acts efficiently in diametrically different conditions, and prejudice is often excited against its use because of the seemingly paradoxical claims of those who write about it. But the fact has been so thoroughly established that it is both a stimulant and a sedative, a tonic and depressor, or a violent irritant, according to the kind and quality of the current used and the method of its application, that those who oppose its use on

the ground of these paradoxical claims simply declare their own lack of practical experience.

In its relations to the arts and in its purely commercial application, electricity affords but little opportunity for the charlatan. In order to obtain an honorable recognition the electrical engineer must in reality be an expert. No incomplete and imperfect knowledge will serve his purpose. With the medical electrician, however, it is far different. He may be utterly ignorant of the simplest problems of physics and entirely at sea in regard to the important subject of current differentiation, and yet unblushingly palm himself off on a credulous public as an expert in electro-therapy. He may indeed be utterly ignorant of medicine itself and yet gravely call himself a medical electrician, while those upon whom he practices his crude and ill-digested art, and who in other things count themselves as wise, fail to see the incongruity between his equipments and pretensions.

Discussion.

In answer to a question from Dr. Massey, the author said that it was difficult to obtain any reaction whatever, although the reaction of degeneration was present, and the arm was greatly atrophied. One object of his paper was to demonstrate that electricity is capable of affecting degenerated fibres, and enough time had elapsed in this case before beginning the electrical treatment, for spontaneous regeneration to have occurred.

Dr. R. J. Nunn said it was absolutely impossible, in a sparsely populated district, for the medical practitioner to have all the most approved electrical appliances always at hand, and it was not so much his fault, as that of his surroundings. These country practitioners are the bone and sinew of the profession. Regarding the tolerance of patients to electricity, he said that he had sent a patient to Dr. Morton who developed albuminuria whenever a mild galvanic, faradic or static current was applied to him. The albuminuria was also produced by nervous excitement, over-fatigue or indigestion.

The President thought this peculiar effect of electricity was rather fortunate, as it gave objective evidence of the effect of this agent on metabolic processes going on in the human body. One should not lose sight of the very important point made in the paper concerning the chemical action of the current.

In answer to a question whether the *shock* of the treatment might not be responsible for the albuminuria, he said that as the patient was used to electrical applications, and the albuminuria followed the application of the quiet continuous current which should not cause any nervous excitement, it seemed evident that the occurrence of the albuminuria could only be explained by considering it a direct result of the irritating action of the current.

NEW CONTRIBUTIONS OF THE ELECTRICAL TREATMENT (BOTH FARADIC AND GALVANIC) TO THE DIAGNOSIS IN GYNECOLOGY.

In the absence of the author, the paper of G. Apostoli, M.D., was read by Dr. Hutchinson.

If the operative technique and surgery have almost arrived at their apogee in gynecology, having since the discovery of antiseptic methods, pursued a most brilliant and successful career, on the other hand it may be affirmed that the knowledge of the indications for operative interference based upon a diagnosis of the condition of the uterine appendages which is of predominating importance, is far from having made the same advance.

In consequence, uncertainty still reigns and a surprise is the rule in exploratory laparotomy.

It is unnecessary to insist upon the interest which attaches itself to a new method of exploration, destined by

its precision and the facility of its exploration to save many mistakes, to show the road, as it were, without the bistoury, thus avoiding irreparable if not fatal errors—destined, we may say, to disarm the surgeon or to counsel an advance after furnishing a sure and exact guide.

If conservative gynecology has indeed found its best and most precious auxilliary in electricity, surgery in its turn is rapidly destined to claim frequently its aid to light the way, to confirm or rectify a doubtful diagnosis, to impose or hasten an operation when at first sight it did not seem to be required or to proscribe it in others as being superfluous, useless or dangerous.

Two vital questions most difficult to solve present themselves every day in gynecology. Are the appendages diseased? If so, is there pus, or what is the degree of their inflammation.

It is to solve these questions that laparotomies called exploratory are made daily or castrations are done not authorized by the actual inflammatory condition, and it is for the solution of these problems that I propose to employ the aid of a *preliminary electrical treatment*.

Indeed exploratory laparotomies and mutilating operations practiced at the commencement for rebellious ovarian pain or for ovarian disease of a doubtful nature should be proscribed until the resources of *faradic sedation* and of the intra-uternal *galvanic reaction* have been exhausted in the diagnosis, I affirm that intra-uterine applications, faradic or galvanic, if questioned with sagacity and perseverance are destined with the greatest frequency to clear up the diagnosis in the following clinical conditions which may be condensed in these formula.

A.—Faradic Current. In 1883 I extended the road so largely opened by my friend and master, Dr. Tripiet and demonstrated what might be gained in gynecology from the faradic current of high tension if administered *during a sufficiently long period*; I showed also that the faradic current of high tension (produced by a long fine wire) is a marvelous *sedative*, a calmer of pain in general and that it was of great utility in the treatment of the so called ovarian pains of *hysterical origin* which plays frequently so large a part in uterine pathology.

The therapeutic response given by the faradic current applied according to the rules which I formulated in 1883 are clear, precise and almost constant. It suppresses or at least diminishes or interrupts for a period varying from several hours to several weeks every hysterical ovarian pain, if it be hysterical only in its origin.

It acts sometimes so instantaneously that one might suppose it the result of a powerful and irresistible suggestion—it brings relief with such facility in the painful ovarian zone—with the more certainty if applied to the interior of the uterus than in the vagina—that armed with these facts I have utilized the method as a means of *diagnosis*. If every hysterical ovarian pain, most frequently unilateral, and *without inflammatory lesion of the appendages* is almost always appeased for a longer or shorter time by the faradic current and every failure of this medication must be attributed to a sub-stratum of inflammation producing a more or less serious irritation of the appendages not amenable to the sedative influence of the induced current. Now, such is the exact clinical fact as an experience of more than ten years has made perfectly evident to me and I am enabled to-day to formulate in several general propositions the rules and practical conclusions which guide me.

Every ovarian pain of hysterical origin is amenable to the faradic current of high tension.

Every failure of this medication is due almost always to a concomitant inflammation of the appendages.

Given an ovarian pain of doubtful origin it is necessary

first to faradize the uterus, either the pain will disappear for the moment or it will not be influenced at all; in the first case it is of hysterical origin, and in the second, it is an unrecognized affection of the appendages which will require a complementary examination or a special procedure.

So if a woman consults us for an ovarian pain and a bimanual examination reveals no evident lesion of the appendages, it is necessary first, to faradize the uterus and if there is no relief it may be necessary perhaps, under chloroform, to make another examination.

If doubt remains the application of the galvanic current will render evident what the faradic only caused to be suspected.

En resume. The faradic current of high tension instructs us as to the true nature of the ovarian pain, so called, of which it is the most rapid and efficacious calmer.

Ovarian pain is indeed most frequently amenable to the faradic current of high tension if the rules of procedure are followed as regards the number of applications, their duration, choice of coils and seat of application which I formulated in 1883.

If *hysterical, and hysterical only*, it is, if not cured, almost always relieved, while on the other hand if of inflammatory origin, notably if allied to an inflammation of the appendages, the application of the faradic current of high tension is unsuccessful in almost every case, so then if in a particular case the *successful cure* enlightens us as regards the diagnosis and imposes an abstraction from operative procedures, in another the failure shows that the pain is of deeper origin, which requires a supplementary galvanic treatment or an operation.

B.—Galvanic Current. Since I proposed in 1882 for divers gynecological affections (fibrous tumors, endometritis, peri-uterine inflammations, functional troubles, amenorrhœa, dysmenorrhœa, menorrhagia, metrorrhagia, etc.) a galvanic treatment uniform in appearance but differing essentially as regards intensity, duration, localization, number and interval of applications, choice of poles, etc., I have been struck with two facts of the greatest importance.

1. *The variable tolerance of the uterus in different subjects for the same dose of galvanic current.*

2. *The variation of this tolerance in the same uterus according to different peripheral anatomical condition.*

These facts at first empirical and confused in my mind only found their explanation when I placed the uterus in subjection to the innervation of the ovaries and tubes and when I had observed that the sensibility of the uterus was above all dependant upon that of the appendages.

The variations in sensibility in different subjects and in the same subject at different times according to the morbid or other condition of the appendages became perfectly clear. The law of salpingian and ovarian reflexes which controls this important problem was not long in receiving at my hands an experimental solution which was equal to a mathematical demonstration.

If it is really true that in a particular case, a woman suffers and is intolerant of the galvanic treatment because the appendages are inflamed, it is necessary only to suppress these organs to reestablish at once a condition of freedom from pain and to restore the equilibrium of uterine sensibility, in order to prove on the other hand that the uterine hyperæsthesia was indeed provoked by the morbid state of the appendages, it is sufficient to apply the electrical current under exactly the same operative circumstances after castration as it was applied before the operation.

The electrical tolerance should be acquired immediately by a uterus which before castration will not support it at

all or very badly. Such is the case and it constitutes the experimental proof of my clinical induction.

I have at present many examples of women whom I have vainly endeavored to treat by the intra-uterine galvanic current which powerless to produce the least benefit only served to indicate the necessity for castration.

This operation having been performed, immediately the excessive uterine sensibility has been appeased and I have been able, after this bilateral operation, after the abolition of the injurious reflexes, to bring to a successful termination an electrical treatment which before was not only intolerable but powerless and inefficacious. Thus the castration liberated the uterus from its galvanic hyperæsthesia and restored a tolerance almost identical with that conferred by the physiological integrity of the appendages.

I have thus been able at one stroke by the same therapeutical measure well directed, to clear up the diagnosis, legitimize a surgical intervention, and to complete later a symptomatic cure which the knife could not accomplish.

It is then perfectly true that the condition of the appendages regulates before everything else and almost entirely the question of intra-uterine galvanic tolerance and it is in this connection that I propose to paraphrase a well known proverb and say:

Tell me what the galvanic uterine reaction is with this or that woman and I will tell you the condition of her appendages.

This formula comprises in itself the new and important problem which I will briefly explain and develop. Since 1884, I have grouped under several heads the causes of this uterine intolerance.

1. *Hysteria.*

2. *Intestinal Inflammation.*

3. Peri-uterine phlegmasies (this word at first somewhat vague, expressing only a general formula, soon took a more concrete form and the expression, lesions, of the appendages, has been substituted.)

4. *Certain fibro-cystic tumors of the uterus.*

In every intra-uterine galvanic application there are two points to note.

The *Operative reaction* which comprises the manner in which the current is supported and tolerated by the patient during the application.

The *post-operative reaction* (which is the most important of the two) comprising all the sensations experienced by the patient the same day and the following ones.

This reaction may be of a *painful character* or simply *nerveous* (a bending over, fatigue, colic, pains in the kidneys, etc., which may be prolonged one or several days perhaps obliging the patient to remain in bed).

This being said we will now examine the general clinical replies to our interrogations with the galvanic current.

a. Every intra-uterine galvanization of from 100 to 150 m. a. in a uterus simply hypertrophied or fibrous, with or without a concomitant endometritis, without an associated inflammatory lesion of the appendages or of the pelvis—every such galvanization I say, applied with all antiseptic precautions, is always absolutely harmless, almost always well supported and is never followed by a post-operative reaction febrile or very painful the next or the following days if care has been taken to respect the individual susceptibility or tolerance, although rarely however during the application there may be an intolerance which forbids and limits a dosage beyond the medium, but it is purely hysterical.

In this case if there is much pain during the application, it is rare that it does not cease at once when the séance is finished or does not rapidly subside.

In such a case I repeat the intolerance is of a purely hysterical character and the diagnosis becomes surer if we

observe an extremely painful reaction on one hand, and its rapid subsidence at the termination of the application on the other, without any consecutive febrile reaction.

In a word, the more a woman complains during the application, the more brusquely and out of proportion to the dose, the resulting reaction—the more generally the pain ceases when the current ceases to pass, the more precise the diagnosis of hysteria.

Having examined the first case we will now turn to the second.

b. On the contrary, in every case of peri-uterine phlegmasia the electrical intolerance during the application and above all the post-operative reaction begins, increases and is prolonged in proportion to the activity of the said inflammation of the appendages (ovaries or tubes). At this point I will stop to answer a perfectly natural objection to the procedure.

Is every intra-uterine galvanic application dangerous in the presence of an ovarian cyst or suppurating inflammation of the appendages?

Yes, if the application is too intense or badly administered.

No, if it is moderate and well conducted.

Yes, if the application is brutal, massive, particularly if the intra-uterine negative pole, and at the beginning of the treatment; no, if progressive, always tolerable, and if the positive pole is used at the commencement.

In conclusion, if when a question of pure hysteria the dose is not of great importance except that it is unnecessary to irritate the patient and turn her away from a salutary medication, in the other case, the greatest reserve is imposed as regards the dose, for it is the safeguard of its innocuity and of its efficacy.

The question must, however, be considered somewhat in detail:

Every cyst of the ovary pure and simple, that is to say without suppuration and without concomitant lesion and inflammation of the tube or appendages opposite, can tolerate safely high intensities applied intra-uterine.

I have observed this quite a number of times in patients when I have applied the current through an error in diagnosis and no accident has resulted, not the shadow of a post-operative reaction of an inflammatory character.

These patients were operated upon afterwards with success and non-inflammatory ovarian cysts discovered with normal tubes.

These facts prove abundantly that to have exaggeration of the uterine reflexes above all there must be an *active* inflammatory process going on in the appendages for we find as a second clinical reply that:

Erysipeloid suppuration, particularly acute inflammation of the appendages (ovaries or tubes) predispose to intense post-operative galvanic reactions.

Yes indeed, that the post-operative reaction which is proportioned to the *suppurating* inflammation of the appendages may cause accidents, it is necessary to have the courage to avow and to proclaim it openly in order to understand the reserve, the circumspection necessary to avoid accidents.

But is this any reason why we should disarm ourselves and renounce the employment of a remedy of incontestable utility?

Yes, if we have not the most certain means to defend ourselves, if we have not a true touch-stone to shield us from our possible ignorance.

No, if we have a sure and positive method of control, if mathematical precision, to shield us from the mistakes we are liable to commit.

This control is first of all *preventive* and inculcates in

doubtful cases the greatest moderation, feeling the way I should say, in the application and number of the first sances.

The general rules of conduct are the following:

a. *Begin every galvanic application with the positive pole in the uterus.*

b. *Never apply on the first occasion more than 50 ma. and never at the commencement go beyond the dose which will be supported by the uterus.*

c. *Make the first galvanization with the greatest circumspection and without brusqueness.*

d. *Interrupt the application as soon as there is manifest intolerance and renew it only after two or three days when all post-operative reaction has subsided.*

e. *Do not augment ulteriorly the intensity and duration of the application except in proportion to the tolerance manifested upon the preceding occasions.*

These precepts are to be well comprehended and faithfully observed whether the remedy is tolerated or not.

If it is well tolerated, we have the signal which indicates that the road is open and we have to advance without fear or hesitation because the uterine periphery is healthy and the appendages in good condition, or at least they are not in a state of actual inflammation or suppuration.

If there has been previous inflammation (which is possible) it is for the moment extinguished which happens in those old exudations which are the posthumous witnesses of an anterior acute inflammation which has totally disappeared. In a word we find ourselves with a patient absolutely amenable to conservative treatment where we can and should try every means of saving the appendages with the chances greatly in our favor.

Every faculty of the practitioner should be employed to adapt to the case, the pole, the dose, and the number of applications. If on the other hand, the intra-uterine galvanic cauterization is not tolerated in spite of the precautions recommended, if in a word an intense post-operative reaction ensues although the sance was carefully conducted, we have in this fact if well interpreted a true thread of Ariadne which will serve to lead us to the true diagnosis.

Every circumstance becomes of importance and serves as a most precious means of control. The fever after—the pain which continues the next and the following days—the loss of appetite, the insomnia, principally the absence of all amelioration and the aggravation of the previous state serve as important guides.

If the post-operative reaction is intense and prolonged it is a cry of "halt!" a red disk which indicates that the way is barred and advance impossible.

So at times we may extract good out of evil; it is the danger avoided while suspected and foreseen which serves as a touch stone to clear up and fix the diagnosis saying plainly:

Here the appendages are suppurating; there they are not.

Here a catarrhal salpingitis which is curable; there a suppurating inflammation of the tubes and ovary. Here an operation is required at once; there it would be a crime to do it.

Here an ovaro-salpingitis amenable to patient, laborious and progressive conservative measures; there a serious inflammation to be treated only by castration or vaginal hysterectomy.

It can be seen then readily how, from the very fundamental principles of this intra-uterine therapeutic method, the surgeon can and will in the future find indications of the highest importance which will enable him to make in advance and *not à posteriori* a correct diagnosis, which will arm or disarm him accordingly.

How vast and important this problem is and how worthy to occupy the attention of surgeons, who are often obliged

to open the abdomen to make a diagnosis; who perform inconsiderate mutilations or operate for supposed fibroid tumors when really it is salpingitis or ovarian cysts, or *vice versa*.

To epitomize what I have said: The galvanic current applied to the interior of the uterus is destined to inform us respecting the state of the appendages—if healthy; if inflamed, the degree of inflammation; if pus exists; if the disease is curable or not; if there is an inflammatory process in course of evolution.

It is capable of saving us from many clinical and operative mistakes and of enabling us to avoid, for one example among many, the error of mistaking a *subperitoneal fibroid tumor* for a *salpingitis*, and *vice versa*.

Two facts of the greatest importance dominate all galvanic intra-uterine therapeutics:

First, the *absolute tolerance* (with the exceptions I have noted).

Secondly, the *intolerance* which increases with the acuteness of the inflammation of the appendages.

The *uterine sensibility* is then in perfect subordination and relation to that of the *appendages*, and the reply we get from the application of the current will enlighten us upon the absence, or degree of inflammation of the appendages.

Beyond this first, most frequent and most important source of intolerance, there are others of secondary importance between which it is usually easy to make a differential diagnosis.

a. First in importance comes frank *hysteria* with its sudden, intense reactions, and general appearance which cannot fail to strike the most unobservant.

b. *Fibro-cystic tumors* of the uterus, very probably of a malignant nature.

c. *Phlegmasias* of the pelvis comprising the *intestines*, which have a well-marked and characteristic history.

The clinical consequences which ensue from these premises, briefly stated, are the following:

1. A uterus tested by the galvanic current with a dose of from 100 to 150 ma. which gives no operative reaction, which not only tolerates this dose but results in a diminution of the dominant symptoms (such as pain and hemorrhage); a uterus, I repeat, thus tolerant has always its periphery healthy, or at least there is not actual inflammation of the appendages requiring surgical procedures, but the galvanic treatment, of which the dose is limited only by the clinical indications to be carried out.

Even if there be a coexistent *ovarian cyst* without inflammation of the tubes, the same electrical tolerance will be preserved.

2. A uterus which supports only 50 ma. or supports it badly, where the consequences are much pain and fever, has a *suspicious periphery* and should be tested with moderation and prudence.

3. A uterus whose intolerance diminishes with the number of applications and is accompanied with marked and increasing attenuation of the symptoms, is that of a hysterical subject, or there is an inflammatory process in the course of regression or arrest.

4. A uterus whose intolerance at the commencement is excessive (supporting only 20 or 30 ma.), and which increases with the number of applications and is accompanied by an elevation of temperature, is a uterus whose periphery is attacked by a lesion not amenable to conservative gynecology. In this case a suspension of the galvanic treatment is imperative when the diagnosis is thus elucidated, and it becomes necessary to employ surgical measures—most frequently it will be a castration justified by the presence of an ordinary suppurating ovaro-salpingitis.

Discussion.

Dr. Massey said this seemed to him the most important paper ever written by Apostoli, and he could, from his own experience, endorse the views expressed in it. The surgeons could find in this new aid to diagnosis an additional help in enabling them to avoid performing many useless operations. In his opinion, the author had drawn the line rather too sharply in regard to the avoidance of electricity where the use of this agent elicits certain painful responses, and in this connection he wished to say that the idea of thrusting a perfectly rigid instrument like Apostoli's electrode into the uterus under all circumstances, was to him simply horrible. He was convinced that moderate inflammation did not contra-indicate very careful applications to the interior of the uterus, but the presence of pus in a tube, without free exit, is a positive contra-indication, as is also the presence of any phlegmonous inflammation which has reached the stage of suppuration. Where the os is at all patulous, and it usually is when there is an inflammatory condition about the uterus, we should use a flexible electrode, with the point protected by a globule of shellac or hard rubber. It may be covered like an applicator with absorbent cotton, moistened with hot water or with a solution of cocaine. In cases of suspected inflammation of the appendages, and with undoubted enlargement and softening of the uterus, he had noticed that where this plan had been adopted, the treatment had been followed by less pain. He was convinced that all ovarian and salpingitic cases are originally uterine, and the question to determine is whether the case is more uterine than ovarian, and this will usually be settled by the treatment.

Dr. Goelet had utilized the faradic current in the vagina by the bi-polar method to facilitate diagnosis, but had hesitated to use it in the uterus in the manner described by Apostoli, because he had found that such cases were at first rather intolerant of intra-uterine interference because of the coexisting endometritis. Treatment of the endometritis, however, which in many instances is responsible for the continuance of the inflammation in the tubes, will so far relieve the undue sensitiveness as to admit of such treatment even in cases which were previously supposed not to be amenable to this treatment. He thought harm would surely result from an indiscriminate practice of this test for diagnostic purposes. The gynecologist is the best qualified to conduct this treatment. It must not be forgotten that what Apostoli might do with impunity, many others, even gynecologists, should hesitate to undertake, for Apostoli has reached a rare state of proficiency in manipulation. He did not approve of condemning every case of uterine intolerance to operative interference, nor did he think Apostoli intended to convey such an impression, for in another portion of the paper, he said that many of these cases can be better treated by electricity than by cutting operations. Endometritis is responsible for the uterine intolerance, and after relieving this, electrical treatment can be resumed with benefit. The so-called Apostoli bipolar intra-uterine electrode as ordinarily made in this country, is an abominable instrument, as it would in many instances require previous dilatation of the canal to allow its introduction, but Apostoli's original instrument is quite flexible and not much larger than an ordinary intra-uterine sound. The platinum electrode, though rigid, can be introduced as readily as the uterine sound if one possesses ordinary skill in manipulation.

Dr. Nunn thought that any high tension current, as for instance the static current, could be used as well as the faradic for the relief of pain. The difficulties in diagnosis in some of these cases are very great. He recalled one case which had been for three years under treatment by an accomplished surgeon for what was supposed to be an ovarian

tumor. There was certainly a tumor on the right side, but the faradic current showed the tumor to be entirely hysterical, and it eventually disappeared. The intolerance which she at first exhibited disappeared after considerable perseverance in the treatment. He might have been particularly fortunate, but he was bound to say that in his hands, inflammation had never followed from the introduction of an electrode. He had been much pleased with the tin electrodes suggested by Dr. Goelet. He preferred to select a small one, and cover it with absorbent cotton until it is of the desired size. Intolerance to electrical treatment had been considered to be dependent upon inflammatory conditions, but the speaker was inclined to attribute it more to idiosyncrasy, and he cited two cases to illustrate this point. One of these patients rarely could stand fifty milliamperes, while the other usually takes one hundred milliamperes without discomfort.

Dr. Rockwell said that before the practice of using high tension currents from very fine wire coils came into vogue, there had been no doubt in his mind as to the superiority of the galvanic current over the other forms, where it was desired to relieve pain, whether external or internal, but now he found it difficult and sometimes impossible to determine *a priori* which current is more suitable for a given case. He had been accustomed to use the current from a coil containing 2,000 feet of wire, made up of several coils of different sizes of wire, all connected into one continuous coil. The current from this coil had a remarkable analgesic effect, like that described in the paper, and it was therefore of value in relieving pain of a neurotic type, and in excluding organic trouble. A short time ago, a patient with all the symptoms of ulceration of the stomach was referred to him for treatment of an associated gastralgia. A current from a very long coil run by five or six Leclanche coils, relieved him promptly, and the speaker then felt justified in stating to the attending physician that he did not consider there was any organic disease present. The subsequent history of the case confirmed this opinion.

Dr. H. H. Hahn, of Youngstown, O., said that he had frequently noted a striking difference in the effects obtained with various electrodes, and in some cases, any stiff electrode, no matter how well made, will drag the neck of the uterus forward, and pull upon the attachments. Under these circumstances, the patient is often intolerant of the treatment, but this may be diminished by using a flexible electrode. He had devised one with a joint just external to the os, so that after the introduction of the instrument, the uterus will be allowed to resume its usual position before the current is turned on. He had in this way been able to use the current in cases in which Apostoli would not employ it, and by beginning with ten milliamperes, and after an extended course of treatment gradually increasing it up to 150 milliamperes, he had obtained very excellent results.

Dr. Charles R. Dickson, of Toronto, said that in some of the cases in which the stronger currents were contra-indicated, he had met with success from the use of exceedingly mild galvanic currents, starting with perhaps only five milliamperes for five minutes. He had had cases in which even with very mild currents, a rash was produced, but after a few weeks of cautious treatment, he had found that the current could be very materially increased. He was not accustomed to employ the ampèreage advocated by many.

(To be continued.)

A NEW gynecological operation has been devised by Dr. Duhrsen, of Berlin. Its object is the vaginal fixation of the uterus for the relief of retroversion.

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This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, JANUARY 21, 1893.

COLLATERAL ORGANIZATIONS.

The recent rapid increase in the number of physicians in this country, accompanied by a corresponding development and progress in our art, has of necessity caused the formation of special societies for the promotion of special lines of professional work. Some of these organizations are naturally collateral and coöperative in their purposes with the American Medical Association. Of these may be named the American Academy of Medicine. The American Medical College Association and the American Medical Temperance Association.

These Societies are each made more successful in their work and purposes by reason of their meetings being held either prior to or during the days of the sessions of the American Medical Association, and at the same place.

Some other Societies would very greatly enhance their own usefulness and prosperity by arranging their place of meeting to correspond with the same place, and either the week before, or after that of the American Medical Association.

In arranging to attend any of the National Society gatherings, everyone desires to obtain all the possible benefits there are to be had during a brief outing. That this may be most perfectly accomplished, a focalizing of societies is necessary. It is to the interest of several hundred physicians and surgeons to have the railway surgeons meet the week after and at the same place with the American Medical Association. At the same time and place the surgeons of the National Guard should hold their annual meeting. It is no exaggeration to say that nine-tenths of the members of these two organizations belong to the American Medical Association. Hence, it is easy to see how desirable it is to them that they may be able to save time and money by such a concentration of meetings as suggested.

The American Microscopical Association is largely composed of physicians, and would add very materially to its working membership by holding its annual session during the week preceding the meeting of the American Medical Association, and at the same place. While mentioning these particular organizations we might refer with equal propriety to others, which would be correspondingly benefitted by holding their meetings at the time and place designated.

In a unification of work and purposes will be found the greatest good to the greatest number.

THE ASSOCIATION OF SOUTHERN MEDICAL COLLEGES.

The editor of the *Southern Practitioner*, a journal edited at Nashville, Tenn., takes exception to our editorial criticism anent the organization of the above named Association. Knowing the history of the attitude of several of the Southern medical schools towards the Association of American Medical Colleges, knowing that twenty-six of these colleges were represented by one or more delegates at the time of the provisional organization of the National body at Nashville four years ago, knowing that a pronounced spirit was manifest by a few of these schools even from the initiative organization, to thwart the establishment of a high grade of requirements, knowing that this disposition was manifest upon the floor of the convention then in session, and that the strongest argument made against any progressive action emanated from a distinguished orator protesting against our attempt to scale the mountain's height by a single leap, knowing that this advanced position upon the part of the delegates was rendered doubtful by a body of delegates representing a few Southern schools immediately convening a caucus in a corner of the same room wherein the National body was holding its convention, knowing that a subsequent caucus was held at the Arlington Hotel, Washington, D. C., immediately antedating the second annual session of the National body in the above named city, knowing that only two of these colleges had severed their connection with the National body and that several were ignoring the provisions of this Association, knowing that the representatives of several of these schools were directly or indirectly trying to destroy the American Association, knowing that gross irregularity existed in regard to the enforcement of even a halfway respectable curricula, by conferring degrees after the study of medicine for a period of "eighteen months" together with attendance upon a few continuous weeks of lectures, or by conferring the degree of M.D. upon the scholarly drug clerk if he will only take "one course of lectures," knowing that the opposition to the adoption of a high standard by the

National Association came from a restricted portion of the South and that the larger portion of the colleges represented in the new Association were these same schools, knowing the above facts at the time of publication of the editorial in question, knowing that the broad-minded, unprejudiced representative of the poorest medical college in America could not conscientiously criticise the tone of the article—knowing these data, we saw fit to manifest the courage of our unbiased convictions by the publication of the editorial in question.

Permit us to suggest parenthetically, that we question the ability of any one journal to prejudice any body of practitioners against the National Association unless it is directly to their interests to manifest such spirit. We are of the opinion that the great mass of practitioners of medicine in Kentucky and Tennessee are as desirous of high grade college instruction as the practitioners of Illinois, Minnesota or New York. If the practitioners of Kentucky and Tennessee were to follow the example of their more outspoken brethren in Virginia, North Carolina, Alabama, Minnesota, New York, New Jersey, and several other States they would shortly be equipped against the dangerous product of several low grade colleges in their immediate vicinity. The experience of a large number of States possessing adequate medical legislation reveals the well known fact that a large portion of the alumni of the medical colleges of America, that are conducted "for revenue only" are unfit to be entrusted with the lives of the people. Even though their examinations are far from rigorous over 25 per cent. of their alumni fail to secure a license. Careful statistics gathered by the secretaries of these boards reveal the fact that these men shortly drift out of the profession or locate in States not possessing efficient medical legislation.

Many of these men when too late to retrieve their great loss openly damn their alma mater.

The columns of this journal in the past have been greatly given over to scientific papers and will probably continue to be in the future. Questions of medical sociology have been greatly neglected notwithstanding we are the legitimate organ of nearly one hundred thousand practitioners of medicine in the United States. In view of the repeated and outspoken voice of the American Medical Association in behalf of better medical education we feel justified in assuming the position we do in discussing this question.

It is stated that both the Rush Medical College and the College of Physicians and Surgeons of Chicago, have offered to give up their entire property to the Chicago University, and the faculties to resign unconditionally in order that a medical department may be organized on a level with other schools in this already wonderfully well organized institution. It is stated that \$1,000,000 is in sight for the endowment of such a medical department.

NATIONAL QUARANTINE LAWS.

We are much surprised at the recent querulous debates in Congress pertaining to the utility, extent and provisions of quarantine laws that are required for the protection of our Nation from such infectious diseases as may be prevalent in other countries.

There has been a unanimous expression of opinion by the medical profession as voiced in the medical press, as to the pertinence and necessity of the National Government assuming absolute control of quarantine measures along the Nation's boundary lines.

This is essential because the questions of control of immigration and imports are wholly within the province of Congress and not of State legislatures. The peculiar rights of the several States are always subservient to measures taken which have a purpose of the greatest good to the people of the whole Union.

The captious disagreements of members of Congress in regard to the formulation of needed laws is a bold illustration of the usefulness to the government of a Cabinet Officer of Public Health.

This official would be the legitimate advisor of the President and of Congress, when all such questions arise for action.

It is quite inappropriate and preposterous to place quarantine measures in the hands of the Secretary of the Treasury, an official whose functions are those of the Nation's banker and credit man. Nor would it be more proper to pass sanitary affairs over to any of the other secretaries for their control.

The men who are familiar with the laws of disease, their prevention and treatment, are the Nation's conservators of health. What do Senators CHANDLER, HARRIS, or SHERMAN, or any other of the members of that august and honorable body—the United States Senate, know of the laws of contagious diseases. What do the Secretaries of the Treasury, the Navy or the Attorney General know of the science of bacteriology and its relation to epidemic diseases? Echo answers—nothing. Nor are they supposed to be versed in such a knowledge. Hence, their action, whatever it may be, must either be of the flaring shotgun order, or depend upon the advice of members of the medical profession.

More eminent sanitarians than those selected by the New York Chamber of Commerce to advise upon the enactment of National Sanitary laws, do not live, move and have their being on our planet, and yet we see Congress paying little or no heed whatever to their recommendations.

A year and a half ago the American Medical Association, the largest representative body of physicians in this country, unanimously passed a resolution requesting Congress to enact a law creating a Cabinet Officer of Public Health, and appointed a committee to formally present, and represent the purpose of

the resolution to Congress. This action of the American Medical Association was endorsed by nearly every State Medical Society from California to Maine.

We regret to say that Congress has been heedless of the resolution.

Never before were such vast health and financial interests at stake, and we see them faced by our Nation's legislators in a way that is puerile in the extreme.

It is not the function or the province of the medical profession to volunteer an expression of opinion in regard to the armament of the Nation's forts or ships, the construction of Government buildings, the disposal of public lands, the enforcement of the Monroe doctrine, the legality of the Inter-State commerce laws, the distribution of seeds, or regulate rates of postage, but because of their special knowledge and information pertaining to conditions of health, of disease and its consequences, they are the accepted and only reliable advisors of the people and their representative law-makers on all quarantine, sanitary and hygienic subjects.

A refusal to recognize the value of such advice, is an indication of egotistic ignorance that is likely to result most disastrously to the welfare of the whole Nation, and at a time when we are most desirous of placing our best foot foremost in the eyes of the Nations of the earth.

It may be that the ignoring of the reasonable suggestions of the medical profession, had a little something to do with the change of political power brought about and determined upon by the people at the recent election. The votes of one hundred thousand educated physicians, evenly distributed throughout the States, besides those influenced by them, is a factor that the most astute politician may not hereafter ignore with sublime indifference.

We are inclined to believe that the recent change of Governors in this great State would not have been effected but for the solid vote of the medical profession.

A study of political economy is in no way antagonistic to that of pathology and therapeutics.

EXAMINATIONS FOR THE MEDICAL DEPARTMENT OF THE U. S. ARMY.—We learn from reliable authority that the statement that has appeared in several recent papers and journals, including this, in regard to the examinations in October last in New York City, was incorrect. Twenty-two was the number who received invitations, but eighteen only presented themselves. This number was reduced to fifteen by failures to reach the physical standard, so that but fifteen were actually examined professionally. The number of successful candidates, four, was correctly reported.

THE CINCINNATI COLLEGE OF MEDICINE AND SURGERY.—Dr. J. Trush has resigned the Chair of Theory and Prac-

tice of Medicine in consequence of ill health and the vacancy thus created has been filled by the transfer of Dr. E. W. Mitchell from the Chair of Materia Medica and Therapeutics. Dr. G. A. Fackler, Professor of Materia Medica and Therapeutics at the Woman's Medical College of Cincinnati, has accepted the appointment to the vacancy created by the transfer of Dr. Mitchell.

THE SOUTHERN MEDICAL COLLEGE ASSOCIATION VERSUS THE AMERICAN MEDICAL COLLEGE ASSOCIATION.—There have been several medical college associations, all having exerted more or less influence for good upon the medical education of the United States. Last year after due consultation, a new American Medical College Association held its first regular meeting in Detroit. The feature most noticeable concerning this was that its membership included but one Southern medical school, viz., the Hospital College of Medicine of Louisville, Ky. The Northern medical colleges were mostly represented. The minimum standard of a medical college was laid down. Most intelligent physicians unite in affirming that this standard was not higher than necessary for the proper training of medical men of the present time. Still the Southern medical colleges, with the exception mentioned, kept aloof. The object at this is now apparent.

At the late meeting of the Southern Surgical and Gynecological Association, the Southern medical colleges formed a Southern Medical College Association, upon a plane distinctly lower than that of the American Medical College Association. The members of this Association would not join the older one, because its requirements were too high. Elsewhere we publish the full text of its rules and regulations. Doubtless some good may be accomplished by this movement, but we fail to see in what direction it is to be sought. It advertises Southern medical schools as low-grade institutions, unable or unwilling to furnish medical students the means for acquiring a first-class medical training. It may be that financial prosperity will follow such a course, but we fail to see that professional advancement lies along this route. Certainly the best grade of Southern medical students will be repelled by it, and desert Southern low-grade medical schools for the halls of such institutions as dare to support their convictions respecting medical training by their practical requirements.

It was a short-sighted policy that inaugurated this movement. The South, as much as the North, needs the best medical training for its medical students; and it must be a matter of regret that by this new organization the Southern medical schools have said to their brightest minds; "If you want the best medical training, you must go to the Hospital College of Medicine at Louisville or to some one of the Northern medical colleges, for the Southern medical schools have agreed to arrange their system of teaching to meet the needs of an inferior demand."

It is a matter of regret to every lover of medical progress that these Southern schools had not ranked themselves with the best in the land, and joined with them in advancing the requirements for the degree of Doctor of Medicine. We still hope that on second thought they will change their minds and join the foremost procession.—*American Lancet.*

DR. RALPH BUTTERFIELD, of Kansas City, a graduate of Dartmouth College in 1839, has bequeathed \$180,000 to the College for the purpose of founding a professorship in archaeology and kindred subjects and for the erection of a suitable building. The donor acquired his property in business and not by the practice of medicine, and was supposed to be poor and needy until his death.

DOMESTIC CORRESPONDENCE.

Revision of the Code.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Sir:—The reply of "A Conservative Member" to my inquiry as to his opinion of the editorial in the *Medical News* of September 17, on revision of the "Code," is very instructive. It was to be expected that an original member of the Association would dwell with affectionate sympathy upon the origin of the Code, and the high character of its model—the famous letter of Dr. Percival. To many of the younger members this information will prove very useful, and I am sure that the sage reflections of your correspondent will greatly instruct and benefit all of your readers. It is undoubtedly true that the "Code" is the expression of the most exalted moral sentiments found in any literature, if we except the Holy Scriptures. But the question at issue is not as to the matter of the "Code," but as to the form and method employed in giving expression to the precepts which it inculcates. The editorial in the *Medical News* referred to contains a series of "tentative" propositions designed to suggest to the revisers of the "Code" the direction in which they could advantageously improve its construction. My purpose was to elicit from so able a defender of the "Code" a criticism of those "tentative" suggestions, for they seem to me very reasonable. If I do not intrude too much upon your space, I would still call the attention of "Conservative Member" to this portion of the editorial in question.

INQUIRER.

NECROLOGY.

Dr. George W. Sargent.

January 1, 1893, Dr. George W. Sargent, one of the best beloved of the physicians of Lawrence, Mass., died, aged fifty-eight years, having been born in Concord, Vt. on the 9th of April, 1834. He was the son of Dr. Seneca and Mary Wilder Sargent, his own full name being George Wilder Sargent. Soon after the birth of George, his parents moved to Pittsfield, N. H., and when he was about twelve, they moved to Lawrence, where he has resided almost continuously ever since. George graduated from the Lawrence High school and then went into the office of his father to study medicine and surgery. He graduated from the Albany Medical College in 1857 and received an appointment as physician and surgeon on a New York vessel, the *New World*, which ran between New York and England. He made two voyages on this vessel and then located in Lawrence. During the war he was a surgeon in the sixth regiment. On the death of his father, he succeeded to his practice. For over thirty years he had been an attending physician and surgeon at the jail; he had been one of the corps of consulting physicians at the general hospital since its foundation and was also treasurer of the United States Pension Examining Board. The only public office he ever held was that of city physician, which position he occupied for several years.

He was a member of Tuscon Lodge of Masons, of Monadnock Lodge of Odd Fellows, of Needham Post, G. A. R., of the American Medical Association, the Massachusetts Medical Society, the Essex County and Lawrence Medical clubs and the Monday night club.

He leaves a wife and two children. George B. is now at the Harvard Medical school, and Irving W. is at Phillips Academy, Andover.

Dr. B. A. Watson.

This well known and justly distinguished physician died at his home in Jersey City, December 22, aged fifty-six years. Dr. Watson was a surgeon of prominence in the army during the war. Since then he has attained distinction in the profession by his medical works. Dr. Watson had not long ago made a valuable series of observations on concussion of the spine. He also contributed to the subject of hydrophobia.

MISCELLANY.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from January 7, 1893, to January 13, 1893.

Major Robert M. O'Reilly, Surgeon U. S. A., the order directing him to proceed to Washington, D. C., and report for duty as attending surgeon, is suspended until further orders.

Lieut.-Col. Chas. R. Greenleaf, Deputy Surgeon-General U. S. A., is detailed as a delegate to the Eleventh International Medical Congress, to convene at Rome, Italy, on September 24, 1893, and will at the proper time proceed to the place designated. While abroad in pursuance of this order he will visit such points in Great Britain, France, Germany, Russia, Austria, Italy and elsewhere, as may be deemed necessary by the Surgeon-General of the Army, on official business, and on completion of the duty contemplated will return to his station, Washington, D. C.

First Lieut. J. D. Glennan, Asst. Surgeon U. S. A., having reported at Hdqrs. Dept. of Texas, will proceed to Carrizo, Tex., and report to the commanding officer of the Seventh Cavalry squadron at that place for duty.

Capt. J. L. Powell, Asst. Surgeon U. S. A., is hereby granted leave of absence for one month, with permission to apply for an extension of one month.

First Lieut. B. L. Ten Eyck, Asst. Surgeon U. S. A., having reported for duty at Hdqrs. Dept. Texas, will proceed to Laredo, Tex., for service in the field, to relieve Capt. W. B. Davis, Asst. Surgeon, who upon being thus relieved will return to his station (Ft. Sam Houston, Tex.).

First Lieut. Frank R. Keefer, Asst. Surgeon U. S. A., is relieved from duty at Ft. Riley, Kan., and will report in person to the commanding officer, Ft. Stanton, N. M., for duty at that post, relieving Capt. John M. Banister, Asst. Surgeon. Capt. Banister, upon being relieved by First Lieut. Keefer, will report in person to the commanding officer, Ft. Leavenworth, Kan., for duty at that post.

OFFICIAL LIST OF CHANGES of Stations and Duties of Medical Officers of the U. S. Marine-Hospital Service, for the four weeks ended January 7, 1893.

Surgeon George Purviance, detailed as chairman of board for physical examination of P. A. Surgeon S. C. Devan, December 21, 1892.

Surgeon J. M. Gassaway, to proceed to Gulf Quarantine on special duty, January 4, 1893.

P. A. Surgeon S. C. Devan, to report for physical examination, December 21, 1892. Detailed for special duty at Philadelphia, Pa., December 28, 1892. Granted leave of absence for two months on surgeon's certificate of disability, January 7, 1893.

P. A. Surgeon P. C. Kalloch, to assume command of the Service at Cincinnati, O., when relieved at Boston, Mass., December 21, 1892.

P. A. Surgeon A. H. Glennan, leave of absence extended sixteen days on account of sickness, December 13, 1892. To proceed to New York City for special temporary duty, January 3, 1893.

P. A. Surgeon L. L. Williams, to proceed to Helena, Ark., on special duty, January 3, 1893.

P. A. Surgeon W. P. McIntosh, when relieved, to proceed to Boston, Mass., for duty, December 21, 1892.

P. A. Surgeon G. A. Magruder, when relieved, to proceed to San Diego, Cal., on special duty, thence to New Orleans, La., for duty, December 16, 1892.

P. A. Surgeon J. O. Cobb, upon expiration of leave of absence, to proceed to Port Townsend, Wash., for duty, December 21, 1892.

Asst. Surgeon W. G. Stimpson, to proceed to Detroit, Mich., for duty, December 20, 1892.

Asst. Surgeon B. W. Brown, to proceed to Port Townsend, Wash., for temporary duty, December 16, 1892.

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No. 4.

ORIGINAL ARTICLES.

ON THE ABSENCE OF COW'S MILK FROM JAPAN: ITS BENEFICIAL CONSEQUENCES.

Read in the Section of Diseases of Children, at the Forty-third Annual Meeting of the American Medical Association, held in Detroit, Mich., June, 1892.

BY ALBERT S. ASHMEAD, M.D.,
OF NEW YORK.

One of the most striking features of that most curious of countries, Japan, is the singular scarcity of domestic animals. There you will never find the fields dotted with oxen or horses drawing the plough, for the Japanese are hardly acquainted with that time-honored tool and symbol of agriculture. Even to serve under the saddle does not come natural somehow to the Japanese horse—"a grudging, ungenerous animal, trying to human patience, with three movements (not by any means to be confounded with paces), a drag, a roll and a scramble."¹ Horses and cows are only seen in cities and on the roads, as pack animals; there are no pastures sweet. Silence is here really a striking, magnificent feature of the *rus beatum*. The cone-shaped Mystic Fusi-yama rises, dimly seen, in the midst of an awful quietness. No lowing herds wind o'er the lea; the barnyard fowl's is almost a voice *clamantis in deserto*; he reminds the farmer, but only in the morning, that even under these stagnant circumstances, time flies. Here and there, however, a dog howls; that is all. The animal life of the land is set apart, concentrated and taken care of, as in a kind of common preserve, general park or reservation in the interior of the land, where it browses and prances and bellows and reproduces itself, contaminating as little as possible that high type of Eastern humanity which is now making ready for the baptism of Western civilization. But let it be said in passing, what the European in Japanese fields misses, I believe, more than anything else, is

"The music of those silver bells,
Falling at intervals upon the ear,
With cadence sweet."

I intend here only to speak of one of the consequences of this quaint absence of animal features, of something not poetical at all, but practical in the highest degree. The cow in Japan is not wanted for her milk; otherwise she would lift her voice more loudly in the landscape. Milk being an animal product, falls under the general condemnation which excludes everything that has pertained to a living body from the alimentation of man. Now, it is true, this latter rule has a strange exception, for the animals of the chase are eaten. Let us not shrug our shoulders at the apparent inconsistency; the Oriental mind understands itself. Thus it happens that, as

Japan may not use cow's milk, the Japanese mothers are compelled by stress of circumstances to suckle their babes themselves—and these delicate dwarfs have become the most perfect, the most successful *Alma Maters* of the world. Artificial lactation is altogether unknown. The children are suckled until the sixth year, and you may hear them ask for the breast in a language as correct as that of adults. But it must be said that the mother's milk is not the only food of the little Japanese. River fish enter for a large part into their diet; after the first year, some other elements of general alimentation are added to their bill of fare. But the mother's milk always remains the *plat de résistance*.

Nature and society have endowed this notable mother with some great and peculiar advantages. Here menstruation returns only a year and a half after birth. Moreover, rules dating back to time out of mind insure the young mother a long period of especial attention on the part of the husband and the whole household. The existence of the concubinate is also, strange as it may appear, a considerable relief to the Japanese matrons. All that must tell favorably on the health of the children. Even the infantile minds find themselves in a wholesome, pleasant medium. Nowhere are children so constantly, so lovingly taken care of. Japan, it has been said, is the very paradise of childhood. Nowhere are the adults so well qualified to enter into the nascent ideas of the infant, to play with him—for the nature of the Japanese contains an extraordinary proportion of simplicity and childishness. The principal food of the mothers is, besides the everlasting rice; fish, shells, seaweeds and other products of the sea. No wine or beer enters into the diet of a lactating woman.

The great reward which Japan reaps from this meritorious care of motherhood and childhood, is the absence of rachitism. All observers have referred to the fact, and to the absence of rachitic pelvis which is the consequence of it; hardly any difficult confinement, and a very small percentage of deaths in childbirth. Now I think I am not wrong in affirming that the chief and central source of these great sanitary blessings is the absence of cow's milk.

It is a remarkable fact that Japan, which according to Dr. Brush ought to be exempt from tuberculosis, is very far from being so. It is probably well known to you that, according to this observer, tuberculosis passes from the cattle into the human organism. In Japan, this disease exists mainly in the upper classes, where evidently cow's milk has nothing to do with it, and where it is easily explained by a systematic custom of close intermarriage, a system of, according to our ideas, incestuous inbreeding, which has endured for many centuries. This is the same process by which the disease is developed in cattle, according to Dr. Brush. It seems therefore, that there is no

¹ Miss Bird, Unbeaten Tracks in Japan.

necessity of transmission, and that the human organism worked upon by the same causes, will show the same effects. Strange to say the mountaineers, who have the most intimate relation with the isolated Japanese cattle, on their breeding-ground, are practically free from tuberculosis. There is also an historic fact which goes much against Dr. Brush's theory. The cattle were introduced into Japan from China, in the third century, and tuberculosis is known to have existed there, in that same high bred class, from times immemorial. The aristocratic disease, tuberculosis, was certainly communicated to the common people through a very extensive concubinate. And I am equally convinced that it was the milk of the mothers that preserved the lower orders from destruction.

Thus it would appear that the absence of cow's milk, though not a blessing in the sense of Dr. Brush, has had, in another way, an exceedingly beneficial influence on the general health of the race.

Racial immunities or the natural resistance of a race to certain diseases, are, at least partly, transmitted by the mother's milk. It is thus, as I said, that this race is free from rachimism. And there is another privilege of the same kind transmitted through the milk to the suckling. The iodized sea-foods, more especially sea-weeds, and the fats and oils of fishes, which have for so many centuries formed a considerable proportion of the diet of nursing mothers, have, without doubt, helped to build up the racial resistance to their national inheritance, syphilis and tuberculosis. In the case of tuberculosis this resistance is so efficient that even the child of a tuberculous mother, fed on what might be supposed to be tuberculous milk until the sixth year, in the majority of cases remains unaffected. Now, if a tuberculous cow's milk transmits the disease to the human organism, why should not this tuberculous mother's milk transmit it? Even we do not object to the suckling done by our own tuberculous women, which indeed extends generally over but one year; yet their offspring, for the most part, are unaffected by the disease, at least in childhood. Now it is more than likely that if there were a contagion through milk, its effects would be apparent in the children.

All these benefits would, of course, be cut off by the substitution of a foreign element for the natural means of transmission.

I have, while I was in Japan, conceived an idea, quite satisfactory at least to my own mind, of the manner in which the iodized food renders its great service to the Japanese race. It is generally supposed that the contagium of tuberculosis is communicated by the inhalation of particles of dried sputum, disseminated in the air. It is my firm conviction that this is not so. I believe that these germs of disease are swallowed with the saliva, and alter the nutrition through the chyle and mesenteric glands. In an organism fed directly or indirectly by iodized substances, the poison meets and is neutralized by its own antidote. The Japanese mother, as by an instinct, never kisses her child on the lips. Indeed, the whole institution of kissing is practically unknown in Japan (except in the sexual act). It is even formally condemned, because the Japanese know that the kiss is the carrier of tuberculosis and syphilis. I have no doubt but that the caresses of the sick have added enormously to our own statistics of tuberculosis, and have caused much of the mischief which Dr. Brush would attribute to cow's milk.

I do not know whether the following has struck any other observer, or if I am the first to call attention to it. There is another, an occult and insidious danger which Japan escapes by letting cow's milk alone. If they drank it, as we do, it is very probable that they would drink it as we do, *nolentes volentes*, mixed with a nobler fluid. Now, thanks to the rice plantations, the water of Japan is by no means *the best of things*; it is even the worst, for it is pregnant with typhoid germs, being continually polluted with human excrements, and swarming with the brood of the distoma. Total abstinence from cold water—an inverted tea-totalism—has been the salvation of Japan. Water is only drunk boiled with tea; the boiling kills the typhoid germs and the eggs of the distoma.

4 King St., New York.

A CASE OF TUBERCULAR SYPHILIS.

From the Clinic of

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[REPORTED BY DR. GEO. HEWITT.]

Gentlemen:—Mr. S., 35 years of age, a stonemason by trade, was admitted to the Medico-Chirurgical Hospital, Dec. 15, 1892. In the year 1878, the patient contracted gonorrhœa. Being at that time of wild and reckless habits, addicted to drink, he was careless as regards treatment. As a consequence the disease was not readily cured and he suffered from it for at least four months. During this period he was not aware of any chancre upon the penis or elsewhere, nor does he remember any enlargement of the inguinal glands. He at length recovered from the gonorrhœa and remained in good health for ten years. For the last six years he has been strictly temperate. During the interval he never had any eruption upon his body except small papules which came out upon the face especially after he had been drinking. He does not know that he ever had any general eruption. He has been subject from boyhood to occasional attacks of sore throat. With this exception he has not experienced any difficulty in the mouth or throat. In November, 1888, he had a bad fall from a railroad car; he struck heavily upon the right hip and was rendered almost insensible. In the early autumn of 1889 he noticed a swelling over the tuberosity of the right ischium. At first it was very small, it enlarged very slowly, but finally attained the size of a pigeon's egg. Painless in the beginning, it ultimately caused him a great deal of suffering, particularly at night. On September 23, 1890, the swelling spontaneously opened, and gave exit to a considerable discharge. He was then confined to the house for twelve days and his attending physician trimmed away undermined or sloughing edges, and dusted the surface with iodoform. The ulcer, however, did not heal. A similar, though smaller, lesion had made its appearance upon the right buttock and had pursued the same course. On Feb. 7, 1891, the ulcerated areas upon both buttocks were excised and the edges of the wound drawn together by stiches. It was about five weeks after this operation before he was able to resume his work. He had not been at work more than three weeks before a third tumor made its appearance a little below the left clavicle near the costo-sternal articulation. Like the preceding swell-

ing, it was at first small and painless, grew slowly at length became the seat of throbbing pain, and in August, 1891, spontaneously ruptured. About two weeks after it opened this lesion was also removed by the knife. Before he had completely recovered from the operation a patch of inflammation developed behind the left shoulder joint. The skin, in this instance, was not, in the beginning, elevated. Subsequently two distinct points of swelling appeared and followed the same course as those already described. This last lesion began about six months ago. The skin has now been broken for about a month.

In the summer of 1885 a barber, when cutting his hair, noticed a bald spot about the size of a dime, situated upon the right side of the head above the ear. He made applications of crude petroleum to this patch and new hair soon grew. But eighteen months ago his wife observed that his hair was again thinning in the same situation. As, however, he was then suffering from the cutaneous lesions, he paid no attention to the spot of baldness, which has continually increased, until it now extends from the ear to the parietal eminence. It is about two inches in diameter and of a roundish form. Upon the vertex, also, the hair is becoming quite thin.

The patient's voice has been husky for three weeks past, and he has had, during that period, a dry feeling in his throat. He has no pain in swallowing. He has never had any inflammatory trouble with his eyes.

During the progress of this malady he lost a good deal of flesh, and became quite weak. Except when he was detained in the house after the operations, he was able to work but came home so fatigued that he was obliged to go to bed at once. His appetite was not good for breakfast, but he generally ate a good supper. His appetite is now good and he has no marked indigestion. His bowels are regular. He has regained flesh and sleeps well.

Upon inspection I found a large depressed cicatrix above and just below the tuberosity of the right ischium. The two are connected by a linear scar, which begins about one inch above the upper cicatrix. At a nearly corresponding point on the left buttock is a large crucial shaped scar. On the front of the chest, extending from the sterno-clavicular articulation about one and one-half inch outward and about two inches inward, is an irregularly oval scar about one and one-half inch in extreme width. At the inner extremity of this lesion an induration, resembling keloid may be detected. This spot is somewhat painful when pressed. The surface of the scar in general is not abnormally sensitive but he is conscious of a sensation of weakness at that spot when he makes unusual exertion, as, *e.g.*, in lifting a heavy weight. On the back of the right arm, just above the axillary fold, is a deep ulcer about the size of a three cent piece. The edges are overhanging and of a dull red color. A little behind and below the ulcer is a medium sized patch of redness, which exhibits here and there a little crusting, and at its lower border a slight maceration of the epiderm, leaving the derma exposed.

Though the origin of this case seems for a long time to have been attributed to traumatism, yet it is doubtless of a syphilitic character. The history of the case, it is true, gives no direct information as regards primary infection but the slow progress of the lesions, their destructive course and their appearance testify to the nature of the affection.

Many patients are met with who freely admit the existence of a gonorrhœa, but are entirely ignorant of ever having had a chancre. It seems strange that a sore of such significance should be overlooked but we must remember the careless habits of many men, the apparently trifling character which the initial lesion often presents. Frequent intoxication, or semi-intoxication lends, as in this case, an element of uncertainty to the history. The man who brutalizes himself with drink is not very observant as regards his person. Large, freely suppurating, and multiple chancroids with a huge, inflammatory and painful bubo cannot be disregarded by the most careless. A gonorrhœa, by reason of the painful micturition which it entails in the acute stage, cannot fail to be recognized. A large ulcerated Hunterian chancre will, we may suppose, always be discovered. There are, however, cases of true infecting chancre which may be overlooked if careful observation be not made. What is known as the "superficial erosion" is of very harmless appearance to one ignorant of its nature. It is small, it does not furnish much secretion and it involves no great depth. It is characterized by parchment induration of the base when pinched up between the fingers, but this is a feature of which the patient is ignorant and which, in a hasty examination by the medical attendant, may readily pass unnoticed. Another form of chancre is still less likely to attract attention. I refer to the dry papule in which induration is present, but nothing more; the skin is intact and even the epiderm may be unaffected; in some cases a little superficial scaling takes place. To mere inspection nothing abnormal may appear. If, however, the lesion be grasped between the fingers, it is found to be of very firm consistence, and feels like a shot or split pea imbedded beneath the skin. I have on several occasions had the opportunity of demonstrating this variety of chancre in a patient who was totally unaware of its existence, but who was at the time suffering from sore throat and one of the earlier secondary rashes. The induration may remain for months before it subsides. A chancre located within the urethra may give rise to some discharge, which might be mistaken for gonorrhœa. Finally, the ganglionic enlargement which accompanies chancre may consist only of a chain of moderately enlarged, painless, or almost painless glands, which might escape careless examination.

For these reasons a patient may easily be misled and declare at a subsequent stage, with perfect truth, that he has never had a chancre. The physician, however, should not be so readily deceived. He should search intelligently for hidden sources of infection. It is equally reprehensible to content oneself with a cursory inspection of the penis, overlooking everything but an open lesion, or to go to the other extreme and carelessly denominate every open sore a chancre. In the one case a grave specific poison is permitted to lurk unsuspected within the organism; in the other a patient is needlessly drugged with mercurials to no avail, or rather to his positive detriment. Everyone should now be acquainted with the broad and fundamental distinction between simple and specific venereal disease, between chancre and chancre, between a local and an infecting sore, between an acute and severe local process which goes no farther, and between the slow and comparatively insignificant initial lesion, which is

only the first expression of constitutional contamination. Chancroids are generally multiple, chancres are generally single; chancroids suppurate abundantly, chancres are comparatively dry, the chancroidal bubo suppurates, the syphilitic bubo is generally unattended by suppuration. Herpes of the genitals ought never to be confounded with chancre or even chancroid. Herpes is of frequent occurrence in the same individual, it comes on without reference to sexual congress, the lesions are evanescent and never produce any enlargement of the inguinal glands. There is, indeed, one form of the initial lesion of syphilis which might be pardonably mistaken for herpes progenitalis. It has been described under the form of "multiple herpetiform syphilitic chancre." This manifestation is, however, extremely rare. It may be distinguished from simple herpes by the absence of itching or burning, their deeper color and their chronicity.

The same inattention which leads a man to overlook the occurrence of a chancre renders it possible that secondary eruptions will escape his notice. The erythematous or the small papular syphiloderm are not infrequently detected by the physician in examining a patient unaware of their existence. Thus, it is by no means uncommon for cases to pursue a comparatively mild course for a number of years when some of the destructive lesions of late secondary or tertiary syphilis develop, to the amazement of the patient, when informed of their true nature. I can recall to mind numerous instances of sarcocele, caries, gummata and visceral syphilis totally devoid of any history of infection.

The only secondary manifestation of which I obtain any decided trace is the circumscribed patch of alopecia. The patient appears to be a man of ordinary intelligence and education, yet, in accordance with his habitual negligence it was only through the discovery of a barber that he became aware that his hair was falling out in a circumscribed patch. A limited area of baldness upon the side of the head would seem far more likely to attract a man's attention than the ordinary and slowly developing baldness of the vertex. Syphilitic alopecia is generally an early constitutional manifestation but, like other symptoms of the disease, it may be postponed. Although in the vast majority of cases we witness a regular evolution of symptoms in relation to form and time, yet in exceptional cases the manifestations distinctive of the secondary period may be postponed or may recur for years. On the other hand, the lesions of tertiary syphilis may appear prematurely during the secondary stage. No soreness of the scalp had, in the present case, preceded the loss of hair. The patient could not remember that he had been particularly subject to dandruff. This is the history of syphilitic alopecia, which is not, as a rule, dependent upon the presence of a syphilide of the scalp, but is due to insufficient nutrition of the hair-bulbs. The patient applied crude petroleum to the affected spot and after a time a new growth occurred. The stimulant affect of the fluid may have had an influence in promoting local nutrition, but syphilitic alopecia is seldom permanent, and the hair begins to grow again at the expiration of five or six months, even in the absence of any treatment. At a later period, when the general condition was seriously depressed, the baldness returned, and the denuded patch has attained a considerable dimension.

Traumatism undoubtedly has an effect in determining the localization of infectious processes. Depressed nutrition due to injury renders a part more amenable to the action of any toxic principles which may exist in the system. Schüller has clearly demonstrated in a series of careful experiments, the influence of traumatism on the localization of tuberculosis. Professor Verneuil has shown that a contusion occurring to a subject in whom syphilis is latent may be followed by indolent ulcerations which partake of all the characteristics of a syphilitic lesion. He has shown, moreover, that though these manifestations may first occur at the site of injury, they may subsequently develop in parts of the body more or less remote. In other words, any local injury may excite or precipitate an outbreak of syphilis in an individual in whom the disease was latent and perhaps unsuspected. The lesion may first occur at the point of injury, but may afterwards involve distant regions. This mode of manifestation corresponds to the history of the present case.

Upon two occasions an extensive area of ulceration was removed. Cicatrization took place but slowly, and the cicatrices are large, rough, thick, with a tendency to the production of a keloid condition. Observation has convinced me that the less the knife is used in this stage of syphilis the less is the destruction of tissue and the less extensive and disfiguring the scar which results. When the diagnosis is plain, surgical interference is seldom attempted, except in the first and last stage. Notwithstanding the advocacy of certain eminent authorities, excision of the chancre cannot be entirely relied upon as a method of preventing the evolution of constitutional phenomena. It is decidedly inadvisable to open gummata unless degeneration has taken place, their contents have become softened, fluctuation is marked and the overlying skin is reddened. In that event the contents may be evacuated by a small incision made at the most dependent part of the tumor. At an earlier stage constitutional treatment will cause absorption of the pathological material.

I arrived at a diagnosis of syphilis in this case by a process of exclusion. With what other diseases could it be confounded? What other constitutional affections give rise to such extensive ulcerations? Leprosy does this, but leprosy scarcely enters into our conception of any case developing in this region of country in an individual who has never resided in a country where leprosy prevails. Tuberculosis may invade the skin, but is not common in that tissue. Tubercular ulcers generally occur around mucocutaneous orifices they manifest no disposition to heal, generally coexist with pulmonary tuberculosis or occur in those persons whose work bring them in contact with animals or cadavers. Lupus vulgaris gives rise to ulcers which might confuse the diagnosis, but lupus usually develops during early life, the tubercles of lupus are smaller than those of syphilis and pursue a more chronic course. The ulcers of lupus are more superficial and the discharge which they produce is more scanty than in tubercular syphilis. In epithelioma there is almost invariably but a single lesion, the ulcer bleeds at the slightest touch, its base is red and fungous and covered with a thin, sanguinolent or sero-purulent secretion. Epithelioma occurs in people of advancing years, it is painful almost from the beginning, and it manifests no disposition to recovery. Sarcoma of the

skin is usually a solitary growth, increases rapidly in size, generally recurs after extirpation. Ulcerated epithelioma usually proves fatal within a year or two, sarcoma within three or four years.

Having determined that the lesions are of a syphilitic nature the question next arises, what particular form of the disease do they represent? The history of the case, the appearance and situation of the lesions leave but little doubt as to this point. The earlier manifestations do not enter into the consideration of the case. The size and course of the lesions, together with the date of their appearance, narrows the distinction down to the syphilitic tubercle or gumma. Both these specific neoplasms begin as small, roundish, painless nodules, increase slowly in size and terminate either by absorption or ulceration. A cutaneous gumma usually attains a larger growth than the tubercle and is generally single. Tubercles are not numerous but are generally multiple. It is not unusual for several tubercles to form in the same neighborhood, and as they undergo their phases of development and retrograde metamorphosis they are apt to coalesce and form an ulcer of irregular and serpiginous outline. The ulcer produced by degeneration of a single tubercle is smaller than that caused by the breaking down of a gumma, but the coalescence of neighboring nodules may result in the formation of more extensive ulcers than a single gummatous ulcer. We cannot, consequently, depend entirely upon the size or the number of the ulcers, but evidence of this kind must be compared with the history of the case. This patient states that the swellings were, in the beginning, very small, that they enlarged slowly, that they were multiple. In examining his body the scars bear witness to the essential truth of his declarations. Not only so, but in the last developed lesion, namely, that upon the shoulder, the ulcer is one of moderate size and I detect several points in the vicinity at which syphilitic deposits have previously undergone degeneration. For these reasons I look upon the case as one of tubercular syphilis.

The distinction between the tubercle and superficial gumma is not very pronounced. Both are late lesions and may not make their appearance, as in this case, until ten years after primary infection. They are both situated in or beneath the skin, they both consist of an aggregation of round cells which eventually by compressing the capillaries of the part in which they are situated give rise to degeneration of themselves and the tissues by which they are surrounded. Cellular proliferation is an essential feature of the pathology of syphilis in all its stages. This fact negatives the ingenious theory of Mr. Jonathan Hutchinson, who likens the progress of syphilis to that of an exanthematic fever and the manifestations of the tertiary stage to the sequelæ which follow those affections. The coëxistence of secondary and tertiary symptoms, the tardy development of secondary lesions and the precocious appearance of tertiary phenomena are also arguments against this theory.

The treatment since admission has consisted in the administration of two fluidrachms of the syrup of hydriodic acid three times a day. He had previously been for some time upon the ordinary mixed treatment, which had not, however, seemed able to hold the disease in check. I, therefore, was not disposed to continue a course which had not been at-

tended with marked success, and prescribed hydriodic acid which is an excellent means of introducing iodine into the system. The iodine is liberated within the organism, and is particularly energetic in the nascent form. Externally the infiltrated patch upon the shoulder has been anointed with a preparation of:

R. Ungt. aq. rosæ
Ungt. zinc oxid aa ʒss.
Aristol ʒi.
m. ft. Ungt.

A starch poultice has been applied every two or three days to the ulcer, which, in the meantime is kept packed with aristol. The aristol is retained in place by means of a piece of gauze, which is secured by a layer of styptic collodion.

Under this treatment a noticeable alteration has been already effected. The redness has lessened, the infiltration is disappearing, the surface of the ulcer manifests a more healthy appearance and has taken on reparative action.

NATIVE AFRICAN CHILD-MARRIAGE: ITS RELATION TO UTERINE DISEASE AND DIFFICULT PARTURITION.

BY ROBERT H. NASSAU, M.D., D.D.,

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The common impression that maternity is easy among nations uncivilized and consequently untrammelled by the restrictions of fashion and conventionality, is incorrect—certainly as to the tribes of Western Equatorial Africa. An acquaintance, based on a residence there of over thirty years, with native African customs and habits, has made it apparent to me that the sexual life of the native women is thereby marred, maternity made painful and often fatal, and diseases entailed that make their lives a burden. I have observed the following facts, which are fruitful sources of uterine disease and difficult parturition.

1. Women are taken in marriage at too early an age. Sexual connection is commonly had before the age of puberty.

Under the polygamous customs of the country, little girls, even in infancy, are bargained for with their parents by suitors, each running a race, trying who shall first complete the sum of money demanded by the parents as "dowry." That sum given, the successful suitor has a right at once to take the child to his own village, and add her as "little wife" to his harem. There she is the servant of the older wives. In her plays she sees lads of her own age whose lascivious advances please her more than the thought of sexual relations with the adult or perhaps aged man who has paid for her. Through the amorous plays of young people, few girls reach womanhood with their virginity unbroken. The polygamist owner of the child, aware of this, jealously decides that if the unripe fruit is to be plucked by any body, he will claim the first right. And he does. As all little boys and girls run almost perfectly nude, his quick, jealous eye observes the very first growth of hair in the axilla, and promptly assumes that there is an equal growth on the external genitals. That is, to the native, a diagnostic sign of fitness for sexual intercourse.

Should a betrothed girl have been allowed by her

polygamist owner, or even by a Christian monogamist, to remain a virgin till puberty, the first eruption of the menses is regarded, not as Nature's official proclamation of womanhood, and of her fitness for sexual access, but as a proof of unfaithfulness—as a sign that access had already been allowed to some lover; and her indignant owner demands that she at once take her place as his married wife.

2. There is no compatibility of age or temper. The girl's consent was not asked while the money negotiations were being carried on for her—a child in her mother's arms. There is no tender courtship, no gentle deference of a lover. Her owner's rôle is that of teacher or master, whose eye is always that of a jealous inspector. And the child responds with the trickery of a pupil, and the subterfuges of a slave. It is impossible that there should be conjugal affection or connubial happiness. Her own wishes and preferences are elsewhere. She clandestinely gratifies them. Her sexual life therefore really goes on under polyandry: the combined (enforced) association with her owner, the (preferred) association with her chosen secret lover, and the (required) connection with her owner's guests. This latter is a part of native African hospitality. The chief furnishes his guests (black and white) with food by day, and a bed and female companion at night. It is the custom of the country. The chief gets his return from his black friends when his turn comes to visit among them; and from white trader guests, by their liberal pay of cloth, beads, etc. The woman has no share in these, but she makes her own plea, and receives from the white man's generosity her own additional gifts. While prostitution is not known, in the form of women as street-walkers openly soliciting men, the house of the polygamist thus becomes, practically a brothel. He is willing to hire the honor of his women to any stranger for a night, or for a longer time to wife-less young men attached to his retinue, only so that the bargain is made with *himself*—the pay placed in *his* hands. He sets up the cry of injured husband only when he discovers some clandestine amour of any one of his women with some man of her own choice. This almost promiscuous intercourse breeds syphilitic disorder; a disease, however, which natives assert is not as virulent among themselves as it is when white depravity is superadded to their own.

A result of the early and promiscuous intercourse, as above described, is the common sterility among women, and impotence among men. Polygamy, arising originally from a desire for progeny, thus defeats itself.

3. Even when the young wife has become pregnant, the chances are against her babe's safe delivery. The probabilities are large that there will be miscarriage.

The physical works of the women are numerous and severe. On them fall not only the ordinary and proper cares of cooking, weaving mats, etc., etc.; but they are also the laborers in the plantations of cassava, plantains, maize, yams, etc. The men recognize as their own share of plantation work, only the felling of the trees, in making the clearings in the forest. All works subsequent to that, the planting, weeding, watching at night against depredations of elephants, hippopotami, wild oxen, wild hogs, monkeys, etc., etc., are regarded as tasks of the women, who may be seen daily, trudging each morning to the plantation

with empty baskets, and returning in the evening laden with burdens of plantain, cassava tubers, etc., a log of fire-wood, and a jug of spring-water. Pregnancy is not accepted as excuse from such labor; the strain of which coming on the muscles of the loins and sacrum, very frequently causes miscarriage, with its usual dangers of habitual abortion, uterine displacements, or entire sterility.

4. The prospect of maternity is welcomed by the young wives: for the women all cherish their babes affectionately (that is the only lasting affection that enters their lives): and they are given by their owners better position, in recognition of their having increased his importance as a father. The prospect is welcomed also by the woman's female relatives: for they also are to share in the increased honor of the family.

But their preparations for the event are wearying, harassing, and often injurious. The young, expectant mother is vexed with innumerable superstitions and prohibitions of what she must not do or eat; she must not look on a corpse, or a butchered animal, or indeed on any sight of blood: she must not eat certain meats, or certain parts of the animal: must not tie a knot, or drive a nail, etc., etc., lest all these cause her hard labor or close her womb. She must be dosed with decoctions, for months in advance, to insure an easy labor. Between prohibitions and requisitions and warnings, her mind is terrified at the possibilities before her, and she approaches her hour of trial weakened in body and spirit, and the hopeful morale for the struggle gone.

5. When parturition does begin, it is met with unskillful treatment. (a) The patient's hut is crowded with officious and curious female relatives, of old and young. All are volubly discussing probabilities, offering advice, and shouting directions. They know of the proper number of months to be counted for pregnancy, but they often mistake the probable day, and seize at once on even "false pains." b. The three stages of labor are not recognized. The patient is urged and even objurgated, during her cries of pain in the initial stage, and bidden to force down; her position for that purpose being changed from a recumbent to a sitting posture. c. Nature is interfered with by the pouring of hot, even scalding, water on the sacrum, under the idea that the convulsive recoil of the muscles will hasten the expulsive efforts of the womb. d. Severer treatment is resorted to, when the labor is long, by the rubbing into the back, and introduction into the vagina, of cayenne pepper. Even forcible enlargement of the vagina by the hand of a female (sometimes a male) doctor, is performed in a protracted labor, resulting in rupture of the perineum, or lateral rupture of the external genitals. e. When, finally, the babe is born, the mother is allowed no interval of rest. All the anxiety of the attendants is for the expulsion of the placenta. They properly recognize the importance of its expulsion, but give the patient no time to recover strength for the second struggle. The cutting of the cord is often delayed until the appearance of the placenta, the infant's feeble life dying out sometimes in the interval. f. An expedient of our civilization to aid in the extrusion of the placenta, *i.e.*, the placing of the new-born babe to its mother's breast, is not allowed. They have gotten hold of the half of two truths, and wrest them both to the injury of mother and child. They are

aware of the desirability of the babe's *pruving* away its meconium: they are aware also that the colostrum of the mother's breast is not *food*. They therefore give the child purgative medicines, and refuse it its mother's breast for three days, while the colostrum is being artificially squeezed out, the child meanwhile being fed on raw sugar-cane juice, or suckled on the watery milk of some aunt or grandmother. Many of the native women never "go dry." Fevered and "caked" breasts are a common result, with frightful mammary abscesses. My patience has often been tried when I have said to some of the old hags:—"Yes, I too know that colostrum is not *food*, but it *is* medicine—the very medicine the child needs as a purge, and which God has put in the mother's breast for that express purpose—which should promptly be extracted from her breast, and which can best be extracted by her child's lips." *g.* Native women are not bandaged for the support of the abdomen's post-natal, flaccid walls. They are expected to arise, perhaps, the very day of parturition, and resume their usual labors. Very common are uterine displacements, and subsequent sterility, which the polygamous father resents. He does not see why the woman who has born him one child should not bear him more. Her inability to do so, he punishes with neglect, unkindness, or severity.

h. An argument given by polygamists for the system is their assumed necessity for having additional women with whom to cohabit, while the one who has just become a mother is nursing her child. Children are not weaned till they are three or four, or even more, years of age. During this time the mother avoids sexual congress, on the plea that her milk may be "spoiled" for her babe, on whom she now lavishes her affection, having had none for the father. Yet that milk, in due time, becomes, thin, watery, and void of sufficient nutriment for the child that has developed most of its first set of teeth. The child loses its infantile chubbiness: becomes thin; and breaks out with eczema and other sores; and its joints become abnormally large.

Among the most common results of African child-marriage, I observed: 1. Rupture in the genital region, either from the little mother's bodily structures being not fully developed, or from outside force used in aid of parturition. 2. Displacements of the uterus. 3. Sterility. 4. Ovarian tumors. 5. Uterine ulcers. 6. Dysmenorrhœa and menorrhagia. 7. Premature loss of good looks, and early appearance of haggard old age.

THE QUALITY OF COMPRESSED AIR FOR SPRAYS AND INHALATIONS.

BY D. LICHTY, M.D.,
OF ROCKFORD, ILL.

Asepsis is now in the zenith of its usefulness and has demonstrated beyond controversy its beneficence to all unfortunates who have to experience the surgeon's dextrous touch or feel his keener blade; every newly made wound is carefully guarded against the ingress of air, of any kind, and quickly sealed against it; the surgeon, gynecologist or accoucheur goes about his work now, with a comfortable assurance that the painstaking physician must envy in conscious helplessness when he recognizes the environment in which he must combat disease.

There is an avenue however, which for the introduction of disease and death growing germs has no parallel and no excuse for its existence, other than that it is here, and no one has protested against it.

The allusion made, is in regard to the *quality* of air usually used in the compressed air receivers of those who treat diseases of the nose, throat and lungs by this means; all the air pumps I have observed offered for sale or in physicians' offices—and I have taken special pains to see as many of them as possible, are situated on the floor of the doctor's office, in not an overclean corner from which the air is drawn into the pump and thence stored in the reservoir to be afterwards projected with a pressure of from fifteen to twenty pounds into the diseased larynx or pharynx of the innocent patron whose inflamed crypts are deep and open wells for the speedy reception, and successful propagation of any of the germ diseases; with just the right factors of moisture and heat to develop them all; or, if drawn into the deeper structure of the lungs to mingle with, or become a portion of the residuary air, a sufficient period would ensue before again exhaled, for the successful incubation of almost any germ, and a nidus for dangerous disease be formed.

To ease my conscience of this offense against my patients I had a mechanic of the Air Brush Co., of this city, at my suggestion, construct for me a small oscillating pump which is run by a one-eighth horse power electric motor, that draws the air from out of doors; first through a five inch funnel shaped chamber, whose open end is covered with wire gauze and its inside loosely packed with asbestos wool to make a complete filter: this filter chamber is fastened at the outside top of a window sash of an upstairs office, and is connected by a rubber tube, larger than would seem necessary—to reduce resistance to a minimum—to the inlet valve of the pump, and is thence, at the return of the piston, forced into the air receiver for future use; by this means all the air comes from outside, is filtered, and it is claimed, that cleaner air is obtained than by the pumps generally located on doctors' dusty office floors.

The mechanical difficulties necessary to adjust any air pump to a similar filter system are not great, or expensive; and it is hoped that the physician will be enabled to use as aseptic air to inhale, or to spray diseased throats as the surgeon does to douche his patients' wounds.

A STUDY OF THE CHEYNE-STOKES RESPIRATION.

BY SAMUEL WOLFE, M.D.,
OF PHILADELPHIA, PENN.

The patient, aged 65, an employee of the City Gas Department had for many years, when exposed to breathing illuminating gas, in the pursuit of his occupation been subject to attacks during which he lost consciousness, but after a short period of half an hour or an hour recovered and was able to resume his work. About three weeks prior to the time when the present observation was made he had suffered from one of these attacks, of more than usual severity and duration, and immediately thereafter was confined to his room for four or five days, with urgent dyspnoea and severe bronchial symptoms. Later on there was continued cough, and great rest-

lessness, and threatened cardiac failure. After partial recovery he again relapsed with great dyspnoea, and gradually became delirious, and during a portion of the time apathetic and lethargic. The Cheyne-Stokes respiration then appeared accompanied by a pulse of 112, the temperature being normal. A cycle of respirations occupied 55 seconds there being 27 respirations. The period occupied by the rising respirations was 25 to 30 seconds by the declining respirations 15 seconds. The number in each of these phases was about the same—14, making the succession during the declining period nearly twice as rapid as during the rising period. The pause lasted from 10 to 15 seconds. In this phase there was no perceptible alteration in the rate or character of the cardiac action, and no alteration in the pupils. Coughing during the cycle, did not influence its duration, nor any of its intrinsic characters. When aroused from his somnolence, which could be easily effected, there was no change in the cycle, except that the phase of decline was lengthened by a few additional respirations, during which there were no chest movements, but air could be heard to enter the extreme lower parts of the lung in jerky momentary pumps. The pause was of course correspondingly shortened. Otherwise the pause was a period of absolute stillness, so far as respiratory sounds were concerned, but as already remarked the cardiac sounds were in no respect altered. The patient died ten days later. The breathing during the whole period was closely allied to the Cheyne-Stokes type, but at no time was it found as typical subsequent to the above observation, as at that time.

CAFFEINE AND THE QUESTION OF ITS ISOMERISM.

Read in the Section of Materia Medica and Pharmacy, at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

BY ALBERT B. PRESCOTT, M.D.,
OF ANN ARBOR, MICH.

In chemistry, caffeine is a body of distinctive molecular character, the subject of active research within the past ten years. In physiology it is bound to be of increasing interest that caffeine, the chosen adjunct of food, holds a remarkable relation to uric acid, an excretory carrier of nitrogen. In dietetics it is of wide import that the beverage plants of the world owe their effects in great measure to caffeine. In pharmacognosy it is worthy of attention that uncertain combinations of caffeine are in medicinal use. In these several studies it is desirable to settle the chemical question, whether caffeine be capable of isomerism or not.

This is not a question that has been raised by chemists; nor is there at present any chemical evidence, that I am aware of, for so much as a suggestion of the isomerism of caffeine. Pharmacologists have virtually raised this question, though they have not defined it as one of isomerism. And there is a great extent of medical opinion and lay opinion that, whatever chemists may say, the alkaloid of coffee does not produce the same effect upon the nervous system that is produced by the alkaloid of tea. If this somewhat widespread opinion, though not well defined, be well grounded, the chemist ought to be able to account for it. On one point the chemist is clear, if there be a caffeine in tea in itself not of the

same physiological effect as the caffeine in coffee, then these bodies are not chemically identical. Then, both being caffeine, that is, trimethyl xanthines, it follows that the one must be isomeric with the other. Before this point is reached, however, there is a great deal for chemical analysis to do, and something for pharmacology to do.

There are five beverage plants, growing in different quarters of the earth, all largely adopted into use by uneducated man, as a restorative from fatigue and a stimulant with food, and each of these plants contains an abundance of the body named caffeine. The body has been found as a slight or inconstant constituent of a few other plants, all of them adjuncts of food.¹ It was found in coffee in 1821; in tea in 1827; in guarana in 1840; in the maté of Paraguay in 1843; and in the kola of South Africa in 1865. In 1838 Jobst and Mülder declared theine to be identical with caffeine. As soon as an alkaloid was found in guarana, in maté and in kola, in each instance the body was reported to be caffeine, and there have been no chemical reports to the contrary. The names, theine and guaranine, have fallen into disuse, and no other name than caffeine has been given to the body derived from maté or kola.

This one body, from five vegetable sources, is one of strongly marked chemical character. It is clearly determinate in character, more so than the most of the alkaloids are, and a body built altogether unlike them. Indeed, it is well within the control of synthetic chemistry. It is liable to be put upon the market as an artificial product. As an artificial body, if properly purified, it should be not an imitation but a veritable reproduction of the natural article. It is becoming probable, however, that this body, the chief alkaloid of five plants, is not the only one existing in them. Traces, at least, of two or more homologues of caffeine have been found in certain teas. There is need of analysis for these homologues, as lesser constituents. The presence of alkaloids accompanying caffeine, as codeine accompanies morphine, is to be put out of the way. Then there will be a clear field for the question of isomerism between the chief alkaloid of one beverage plant and the chief alkaloid of another, such as the difference between atropine and hyoscyamine.

As to the isomerism of caffeine, its probability can be denied only by full study of all research hitherto done on the molecular constitution of this group of bodies. The possibilities of isomerism are coming in greater number into view, as science advances. When the chemist believed himself able to find the arrangement of atoms within the molecule as truly as the order of the fingers upon his hand he seemed to have reached a limit of isomerism. Then it appeared that nature had not stopped at this limit. Whereupon the chemist bethought himself that the order of five fingers as they face on the one hand is

¹ Caffeine occurs in small amount in cacao beans, according to Schmidt (1883), theobromine being, as is well known, the principal alkaloid. The U. S. Department of Agriculture, in Division of Botany, has lately published (Bulletin No. 14, 1891) descriptions of the flex cassine, growing from Virginia to Texas, and used by the aborigines as a beverage on festal occasions. Prof. E. P. Venable found it to contain caffeine 0.27 per cent.; tannins, 7.39 per cent.; total nitrogen, 0.73 per cent. This plant is another species of the maté, *Ilex paraguensis* (Am. Jour. Pharm., 57, 389). The South African "bush tea," used for a beverage, consists of species of *Cyclopodia*. Three of these species were examined by Greenish in 1881 (Phar. Jour. Trans., [3] 10, 217-221) for caffeine, and none was found. Another species was examined for caffeine by Church in 1870 (Chem. News, 22, 2), and none was found. A few months ago a small sample of a leaf stated to be a species of *Cyclopodia*, and a "bush tea" from South Africa, strayed to my laboratory. Analyzed by Mr. Gomborg it was found to contain caffeine. A further sample has been sent for.

not the order of the five as they face on the other hand, and lo! these were just some of the additional possibilities that nature had filled out. Moreover, the most recent biological chemistry is full of suggestions of isomerism as yet not traced out at all. But caffeine is a body so well controlled in its structure, that the limits of variable order in its molecular parts are not out of the reach of chemical studies.

A difference of physiological effect, once well established for a pure body, a body that is one in all its laboratory reactions, chemical and physical, is a difference to be accepted as proof of isomerism. This might be termed physiological isomerism, but it must be a chemical fact none the less. It must be due to the manner of chemical union. Matter is made up of molecules, and a molecule is always a product of chemical action, whether such action can be traced out or not. If a function of life can serve as a qualitative reaction for any chemical body, a reaction to which chemical union is more sensitive than it is to light or heat or laboratory reagents, it belongs to the chemist to measure the results as well as he can.

But it were well first to avail ourselves of existing evidence as to the relative effects of tea as a whole and coffee as a whole. Such evidence, whether taken from certain functions of the body or from the sum of all the functions, is conclusive to many persons. If not conclusive to the pharmacologist, who would measure effects of each constituent upon each function taken separately, still the evidence drawn from the action of the whole of tea or coffee is not without bearing upon our estimate of the value of caffeine. We have a right to ask what there is in tea, and in coffee, beside alkaloids, to which the observer can ascribe the effects of these articles as beverages. Some answer to this question ought to be afforded by chemical analysis, as I have urged from time to time since 1876. The question, like others of the same sort, is not so simple as it is apt to be supposed; and much careful analytical work is wanted upon it.

What is wanted is a full analysis of the entire content of the ordinary beverage infusion of tea and of coffee. If we go to the common analyses of the books, we fail to find out what and how much, out of tea or coffee, goes into solution and into the stomach and into the blood, for dynamic registration by the brain, the heart, the vascular system, etc. Such account of the actual content of the beverage infusions as I have been able to collect, I have grouped together in the accompanying table. Some of the earlier data were obtained in my laboratory, a former student of mine has independently furnished the fullest data, other quite comprehensive results are from sources remote from my personal knowledge, and to fill up a few gaps I have resorted to factors of comparison. The citations specify the several sources of the figures presented.

The following conclusions are evident:

1. The alkaloid counted as caffeine is mostly dissolved by ordinary hot infusions and by decoctions of tea and coffee, even if brief in maceration. Of the two beverages, coffee is apt to be a little the richer in alkaloid, but this difference is not distinctive. Three grains per pint is a common proportion.

2. Tea beverage is very rich in tannins, which are nearly absent from coffee beverage. Tannins are very slowly drawn into infusion, so that the time and temperature of infusion govern its astringency. A cup

of tea may have from two to six times as much of tannin as it has of alkaloid.

	Alkaloid.		Tannins.		Soluble Ash.		Potassa.		Other Soluble Substances.	
	Tea.	Coffee.	Tea.	Coffee.	Tea.	Coffee.	Tea.	Coffee.	Tea.	Coffee.
I. Total Content, in percentages:										
1. GEISLER, 1881: in averages of 30 grades (Note A)	2.6	1.1	15.2	3.5	2.3	2.4	17.0	21.7		
2. DRAGENDORFF, Univ. Dorpat, 1874: 23 grades (Note B)	2.0	1.1	12.4	3.5	2.3	2.4	17.0	21.7		
3. The writer and Mr. Clark, 1876: 15 grades (Note C)	2.0	1.1	12.4	3.5	2.3	2.4	17.0	21.7		
II. Dissolved in Infusions, as per cent. of dry article:										
1. GEISLER, 1881: by infusion at 100 C. (Note D)	2.4	1.1	9.2	3.8	1.4	1.4	12.5	12.5		
2. FELLOWS, 1880: by 10 minutes (Note E)			0.6	0.0						
3. FELLOWS, 1880: by 20 minutes			1.5	0.1						
4. FELLOWS, 1880: by 30 minutes			2.5	0.8						
5. KENRICK, 1891: (Note F) 13 black teas	2.8	1.1	5.4	3.5				12.0		
6. KENRICK, 1891: 18 Japan teas	2.5	1.1	9.4	3.6				11.6		
III. Content of Infusions, in Grains per Pint:										
1. Calculated from Geisler (II, 1) (Note G)	2.5	1.1	4-13	3.8	1.4	1.4	12.5	12.5		
2. Calculated from Kenrick (II, 3, 6) (Note G)	2.65	1.1	5-9	3.5				13.3		
3. By Fellows (Note E) direct			3.3	0.9						
4. Calculated from I, 2 and other sources (Note H)	2.5	1.1	3.5	9.5	6.3	6.3	56.0	56.0		
5. Frequent proportions, summarized	2.5	1.1	3.5	7.0	0.7	3.5	9.5	1.4	6.3	56.0

Note A.—J. F. Geisler, chemist to the New York Mercantile Exchange, American Grocer, October 23, 1881; Prescott's Organic Analysis, 1887. The thirty grades embrace six "Indian teas," with an average of 15.8 per cent. tannins; thirteen Oolong, 16.4 per cent. tannins; and eleven Congou, 12.6 per cent. tannins. The teas were obtained of importers, as selected representative grades. Percentages are given on the tea dried at 100 C.

Note B.—"Werthbestimmung," p. 60. Recalculated to give percentages on the tea dried at 100 C. From twenty-three grades and varieties of tea; the tannins from only four varieties. From twenty-five varieties of coffee; the potassa from only seven of these. The analyses of teas are credited to Prof. Dragendorff and Mr. Weyrich.

Note C.—Univ. Mich., 1876; Am. Chemist, 7, 44. In use of a method of volumetric analysis with cluonine, titrating the excess with iodo-mercurate, as adapted for analysis of tea in the work reported upon.

Note D.—The contribution cited in Note A. Average of results from sixteen varieties. These results are separately given in the report, as are those of 1, 1. The infusions were made by 100 parts of distilled water, poured on boiling, and standing ten minutes. The percentages are given on the air-dry tea. (The thirty teas of I, 1 average 6.6 per cent. of moisture.)

Note E.—Chem. Lab. Univ. Mich., 1880; Physician and Surgeon, 2, 342. From eleven varieties of tea and six of coffee. Infusions in 50 parts of distilled water at about 90 C.; the estimations by the same method designated in Note C. In some way, perhaps in not accounting for retained liquid (out of the 50 parts of solvent) the results are probably too low, but they are of value in comparison with each other, showing the effect of prolonging the period of infusion, and the difference between coffee and tea in parallel conditions.

Note F.—Laboratory of Internal Revenue Department, Ottawa, Canada, 1891, Bulletins No. 24 (tea) and 29 (coffee). The infusions were made under the conditions adopted by Geisler, Note D, namely: ten minutes action of 100 parts of water, taken boiling. The percentages are given upon air-dry tea; the moisture being 6.5 per cent. for the black, and 4.0 per cent. for the Japan varieties.

Note G.—In these calculations a certain "strength" of each beverage must be assumed. The standard of common strength which the writer arrived at, from various data, in 1880, is here adopted. The data are given by the present writer, in Physician and Surgeon, 2, 342, and the standards are as follows: For tea, 73 parts of water, 1 pint from 100 grs.; for coffee, 23 parts of water, 1 pint from 317 grs. This gives 224 five-ounce cups from one pound of tea, and forty-five eight-ounce cups from one pound of coffee. To this strength the results of Geisler and of Kenrick are reduced. Of course Geisler's infusions, more dilute, would dissolve somewhat more than an infusion of this domestic average. The greater concentration of coffee beverage should bring down these figures, and infusion for over ten minutes would raise them.

Note H.—Calculated to the assumed average strength of beverage stated in Note G.

3. Coffee beverage carries quite constant potassium salts amounting to four times the quantity in tea beverage. A cup of coffee contains potassium salts about twice the quantity of its alkaloid. Some of the potassium is in phosphate.

4. The nutrient and other remaining solids in coffee infusions amount to four times the quantity of the corresponding solids in the infusions of tea. A pint of coffee contains an average of 50 to 60 grains of solids beside alkaloid, ash, and tannin. The

pharmacology of some of these bodies ought to be studied.

5. There follows to be determined the homologues of caffeine (theophylline, theobromine, and xanthine), their presence, quantity, and effect. Then remains, if found at all, any evidence as to isomeric caffeines. For these inquiries it is needful to discuss the known constitution of caffeine itself.

Caffeine stands apart from vegetable alkaloids as a class. It is not a derivative of pyridine. It does not give evidence of a closed chain of carbon atoms in the same state of saturation found in pyridine derivatives. It does not contain any part of the fruitful benzene molecule. When it is broken up in any way, aromatic compounds are not formed out of it. In all these related particulars caffeine is unlike the numerous alkaloids of cinchona, or opium, or hydrastis, or coca, or pepper, or conium, or henbane, or tobacco. It stands apart, also, in the great content of nitrogen it carries, namely 28.8 per cent. Proteids have 16 per cent.; quinine has 8.6 per cent.; strychnine, 9.0 per cent. of the same element.

Caffeine is a thrice methylated xanthine as clearly as chloroform is a thrice chlorinated methane. As trimethyl-xanthine its chemical possibilities in general are those of xanthine, itself. As a tri-derivative of xanthine, it is methyl-saturated, and does not have the obvious theoretical possibilities of isomerism that di-derivatives and mono-derivatives possess. These have been readily realized in synthesis.

Of the four atoms of hydrogen in xanthine, $C_5H_4N_4O_3$, only three are linked to nitrogen, and only these three are replaceable by methyl. The fourth atom of nitrogen in xanthine is linked to carbon only, in the manner of a tertiary base. Probably this is the point of unyielding difference between uric acid structure and xanthine structure, preventing the conversion of the one ($C_5H_4N_4O_3$) into the other ($C_5H_4N_4O_2$). The resistance to such conversion was shown by E. Fischer in 1884.²

Four methyl groups can be introduced into uric acid; only three into xanthine.³ In every case the introduction is a substitution for hydrogen, and a linking to nitrogen. In every case, when the methylated compound is broken up, the methyl groups remain linked to the nitrogen, either in methylated urea or in methylated ammonia.

Xanthine and uric acid agree in this, that they contain two molecules of urea united to an unsaturated chain of three carbon atoms. The carbon chain holds the fourth hydrogen atom of xanthine, and the third oxygen atom of uric acid. Each urea group contains two ammonia groups. When an ammonia group is broken off, it is capable of neutralizing one valence of an acid, forming a strong salt. Were the four nitrogen groups of xanthine, or caffeine, sufficiently positive in their polarity, then they would hold four valencies of an acid. Then caffeine would be a quadrivalent base. But it lacks the positive polarity to be a decided base at all. Urea is almost as near an acid as a base, such is the negative power of its carbonyl group. The three-carbon chain of

xanthine, and of uric acid, introduces such a negative preponderance that they are acidulous rather than basal. The mono-methyl, and di-methyl derivatives of xanthine are less basal than caffeine. When three methyl groups are introduced their polarity as positive groups appears to create a slight balance of electro-positive quality to the molecule. As a result caffeine is capable of serving as a base, but not to the extent of more than one valence. So urea can at most hardly neutralize more than one acid valence. When an acid valence is united either to caffeine or to urea, its negative polarity so far preponderates in the entire molecule that the remaining nitrogen groups are powerless to unite with acids. The case is like that of acetamide. That caffeine unites with strong acids, slowly but in final proportions quite true for monovalent base, was demonstrated last year in the admirable paper of Mr. H. W. Snow.⁴ The acetate, however, was found by Biedermann⁵ to be divalent.

In the halogen derivatives, however, such as bromo-caffeine, chloro-caffeine, etc., the halogens are received as they are by a hydrocarbon. One halogen atom can be united by substitution for the fourth atom of hydrogen. Also two halogen atoms can be united by a saturation of the unsaturated couple in the carbon chain. Union of hydroxyl, the amido group, an ethoxy group, etc., in this way, are unions independent of the nitrogen groups, or of any basal properties whatever.

The introduction of a methyl group in connection with the carbon chain of caffeine has not been accomplished. To do this would be to make an interesting homologue of caffeine. To make the same introduction in theobromine would give us a clearly distinct chemical isomer of caffeine. An attempt to make this isomer by different well-known methods for such substitution, has been faithfully made in my laboratory, this season, by Mr. M. Gomberg, as a part of investigations, not yet published, upon the question of isomerism of caffeine.* Various conditions of reaction were employed. This much is evident, the carbon chain does not readily attach either methyl or ethyl. On the other hand, the impossibility of such methyl introduction has not been established. Mr. Gomberg has introduced other groups, not heretofore brought into union with the carbon chain, and will proceed upon the line of work in which he is engaged.

As to the possibility of a plural of trimethyl-xanthine, some things are obvious. Assuredly its isomerism, in the more common ways, is not pointed out to us by the chemistry of the xanthine group. The fourth atom of nitrogen in this body does not receive methyl, except by bivalent addition, a sort of over-saturation. No asymmetric carbon atom appears in the body. And whether from coffee or from tea, the alkaloid is inactive to polarized light.⁶ But it would be rash to assert the impossibility of isomerism of any sort. For example it is open to ask whether the atom of hydrogen not methyl cannot link to the intermediate carbon of the mesoxalic chain, doing

² Ber. d. chem. Ges. 17, 328. The report of Strecker, from the work of Rheineck, in 1874 (Ann. Chem. Phar. 131, 121) that uric acid is deoxidized to xanthine by sodium amalgam, was a singular instance of error lingering long in literature. It was disproved by E. Fischer in 1884 (Ber. d. chem. Ges. 17, 1776.)

³ This is true of the substitution compounds. The addition of methyl iodide to caffeine, obtained by Tild. n (1865; Jour. prakt. Chem., 94, 374) and examined by Schmitt (1883; Ann. Chem. Phar. 217, 270) (1885; ibid. 141) furnishes an apparent approach to a xanthine derivative. This addition compound is, however, a sort of super-saturated body.

⁴ 1891; Proc. Am. Phar. Assoc., 39; Further, Lloyd, 1881; New Rem., 10, 38.

⁵ 1883; Archiv. Phar. [3] 21, 175; Jour. Chem., Soc., 46, 185.

* Read in Am. Assoc. Advancement of Science in August, 1892, "Trimethyl Xanthine and some of its Derivatives," by Moses Gomberg, M.S.; Am. Chem. Jour., 14, 611. (Reprints.) Mr. Gomberg continues this investigation, working in the laboratory of the writer.

⁶ This was determined in the writer's laboratory in 1887. Other physical differences were sought for and not found. (Unpublished records.)

this in exchange with the valence of nitrogen of the third position.

With some outline of caffeine structure before us, it will be easier to see its relation to certain of its homologues, some of which, as already intimated, have been found in tea. There is a lack of thoroughgoing analysis to this end. The reports, so far as I have found them, are as follows:

Theobromine, or dimethyl xanthine, the alkaloid of chocolate, was found in Himalaya tea by Zöller in 1871.⁷ Its solubilities in water and in ether are not so large as those of caffeine, but in smaller quantities it will not be excluded in customary preparations of caffeine. Neither will it be detected by ordinary tests. Xanthine itself, and hypoxanthine, were found in several samples of tea by Baginski, in 1885.⁸ It has not been much searched for. Its very slight solubility in water would, apparently, reduce its proportion in infusions to very narrow limits, even if present in tea leaf, but as it is exceedingly soluble in alkalies it may be affected in solubility by the presence of the alkali salts of tea.

A dimethyl xanthine, isomeric with theobromine, was announced as a discovery in Himalaya tea, by Kossel, in 1888,⁹ who named this new vegetable body, theophylline. Like theobromine it unites with alkalies as well as with acids. Its methyl derivative was found identical with caffeine. Broken up, its alloxan is a dimethyl compound, its urea is not methylized; so its methyl groups are in positions 1 and 2. This explains its difference from theobromine, in which a methyl group occupies position 3.¹⁰ Theophylline was found much more soluble in water than theobromine. Therefore, if in tea leaf, it will be in the infusions. As described, its presence in caffeine would probably be overlooked.

The existence and occurrence of theophylline has not been verified or followed up. Kossel had been known in chemical literature for his frequent contributions analytic and synthetic upon xanthine and allied bodies, for eight or nine years prior to the announcement in question. The year after, Messrs. Paul and Cownley¹¹ examined the extract of 200 grams of tea of Himalaya, and found an alkaloid not fully determined. They have since¹² reported a series of estimations of "theine" in tea, without, so far as I have seen, any account of residual alkaloids. Coffee does not appear to have been carefully examined for alkaloids homologous to caffeine, that is, trimethyl xanthine, and the same is true of guarana, maté and kola.

It has been usually assumed that pure "theine" is the alkaloid of tea completely freed from matters not alkaloids. "Caffeine" and guaranin" have been defined in the same way. There is now a degree of uncertainty as to the chemical purity of the several articles under these names, an uncertainty which it belongs to the chemist to clear up. Let us see what stipulations of purity have been made for these articles when they have been taken for physiological trial.

Shortly after Emil Fischer's researches on the xanthine group, showing how little relation xanthine

has to uric acid, and how clear is the homology of caffeine and theobromine to xanthine, Wilhelm Filehne made a pharmacological investigation of these four bodies. This was in 1886.¹³ Happily, Fischer supplied Filehne with the articles, xanthine, caffeine, theobromine. No mention is published of any precautions against xanthine as an impurity in caffeine, nor any statement as to the source of the caffeine, whether from tea or coffee or synthetic work. The object was a physiological comparison of xanthine, dimethyl-xanthine, and trimethyl-xanthine. Filehne found the three bodies to differ in degree rather than in kind of action, and that the effect of xanthine was the most intense, that of trimethyl-xanthine the least intense of the three. He found, as others have, that uric acid does not possess the power of xanthine at all. Ethoxy-caffeine was found by Filehne, as also by Baumetz,¹⁴ to have a distinctly different, somewhat stronger action.

Dr. Thomas J. Mays, in 1886,¹⁵ made a full and careful comparative trial of caffeine and theine. He had the alkaloids prepared for him by designated makers, to ensure that the one came wholly from coffee and the other from tea, but no mention is made of other precautions as to purity. In his conclusions the two are not identical.

In 1887 Dr. T. Lauder Brunton put caffeine and theine upon pharmacological trial.¹⁶ His precautions as to true samples are mentioned as follows: He obtained the caffeine from Schuchardt. The theine was a pure specimen from Messrs. Hopkins and Williams. In referring to the "discrepancies" between Dr. Mays results and his own, Dr. Brunton says they may be "due to difference in the animals employed or to variations in the theine," "*for it is just possible that there can be differences in the active principles obtained from different kinds of tea, or even from the same kind by different methods of treatment.*" Dr. Brunton did not find his "theine" and his "caffeine" to have the same action, nor did he find the difference between the two to be the same recorded by Dr. Mays.

In the present state of evidence, then, we reach certain conclusions as follows:

1. The five beverage plants owe some of the differences in their effects to their different yields of bodies not classed as active principles.

2. The total active principle of a beverage plant, the "theine," "caffeine," etc., as obtained, is perhaps liable to contain small quantities of xanthine and other homologous bodies of physiological effect.

3. The main active principle in each of the five beverage plants is, unquestionably, a trimethyl-xanthine. Chemical studies indicate, as yet, only one trimethyl derivative of xanthine. If, however, strictly pure trimethyl-xanthine, known as caffeine, from one plant clearly differs in physiological effect from the same body taken in strict purity from another plant, then the chemist will recognize a proof of isomerism, and await its explanation by later chemical researches.

University of Michigan.

Discussion.

Prof. Remington called attention to the scientific foundation for the custom of simply making an infusion of tea, by

⁷ This body may have been theophylline.

⁸ Zeitsch. physiol. Chem., 8, 395; Jour. Chem. Soc., 48, 286.

⁹ A. Kossel, 1888; Ber. d. chem. Ges., 21, 2161; Jour. Chem. Soc., 54, 114; Am. Jour. Phar., 60, 161.

¹⁰ From theobromine, a monomethyl alloxan is obtained with a monomethyl urea.

¹¹ 1889; Phar. Jour. Trans., [3] 19, 24; Jour. Chem. Soc., 56, 416.

¹² 1891; Phar. Jour. Trans., [3] 21, 61; Jour. Chem. Soc., 60, 338.

¹³ W. Filehne, 1886; Arch. Anat. Physiol., p. 72; Therap. Gazette, 10, 628.

¹⁴ 1886; Therap. Gazette, 10, 763.

¹⁵ Therapeutic Gazette, 10, 586; Proc. Am. Phar. Assoc., 35, 335.

¹⁶ T. L. Brunton and J. T. Cash, 1887; Proc. Royal Soc., 12, 238; Jour. Chem. Soc., 52, 985; Jour. Physiology, 9, 112.

which the flavoring substances and caffeine are extracted, leaving the insoluble tannin behind.

The chairman stated that if the statement is to be accepted that theine is different from caffeine, it will be necessary to write "thea" after caffeine, since much of the supply of caffeine is obtained from damaged tea. Dr. Edward R. Squibb, in a letter some years ago, declared that there was no difference between theine and commercial caffeine, and threw some doubt upon the existence of caffeine, as such in the living plant. A practical point, showing that tea is prized for something more than its alkaloidal content, lies in the fact that some cheaper grades of tea are richer in caffeine than the higher-priced teas. As regards the difference alleged to exist between the alkaloid derived from tea and that from coffee, it is possible that some of the volatile substances of the tea are not fully separated from the caffeine, and modify its physiologic action; just as piperine may owe much of its stimulating qualities to volatile substances usually associated with it.

In practical medicine, the insolubility of tannin should be remembered, and in making infusions for the astringent effects, as in antimonial poisoning, or for their action on mucous membranes, the tea or coffee should be boiled. On the other hand, when the stimulating effects alone are desired, a rapid infusion is all that is needed.

In closing the discussion, Dr. Prescott said that, During the discussion which followed the reading of this paper, the question had been asked, what extent of the effect of tea and of coffee is due to their essential oils; also to what extent caffeine or theine is changed by methods of extraction. To this he replied that, undoubtedly the essential oils in question are of decided influence. Many volatile oils are of active physiological effect. However, these oils have not been separated and examined. That of coffee is developed by roasting; that of tea, not improbably, is developed by the curing process, with its stage of fermentation, and of firing. As to the alteration due to modes of extraction, he believed they could hardly extend much beyond the liberation of the alkaloid from certain combinations of the same.

COLLABORATION IN MATERIA MEDICA AND PHARMACY.

Read in the Section of Materia Medica and Pharmacy, at the Forty third Annual Meeting of the American Medical Association, held in Detroit, Mich., June, 1892.

BY CHARLES RICE, PH.D.,
OF NEW YORK.

The new movement of establishing closer and official relations between the two professions of medicine and pharmacy was inaugurated at a time when its desirability, or rather necessity, had become generally recognized. Both professions have many interests in common, and both have to supplement each other by their special knowledge and attainments. Many are the topics—ethical, legal, historical, hygienic, statistical, educational, social, and particularly scientific—which can and will be profitably discussed at joint meetings of representatives of the two professions; and some of these topics may even be said to form burning questions which have hitherto been treated by the medical and pharmaceutical press mostly in an *ex parte* manner. It is hoped that these may, hereafter, be brought to a solution satisfactory to all.

But the discussion of professional topics, or the reading of papers thereon, at the joint annual meetings, does not seem to be sufficient to infuse life into a copartnership such as it is proposed to establish and maintain between the two professions. Something else, of a more lasting and permanent interest, something of tangible utility, so to say, seems to be wanted to serve as a firmer bond. In the judgment of the writer, such a bond can be established—and indeed its want has long been felt—by the official interchange of, and decision on professional or scientific

problems between the two professions. The physician as well as the pharmacist, each possesses, if properly trained, a fund of special knowledge, often laboriously acquired and constantly augmented by daily practice and experience, which, in these days of rapid progress, can no longer be expected to be met with combined in one and the same person, but which has to be gathered and studied by specialists for the benefit of the other members of their own or a kindred profession. Yet it is an indisputable fact that many important facts which have long been known to or recognized by one profession, and which yet vitally concern the other, remain often entirely unknown, or only imperfectly known to the latter for a long time. If there were an official channel through which such useful information could be conveyed, at regular intervals, from one profession to the other, much would thereby be gained. It may be well to mention an example by way of illustration. Many physicians are in the habit of prescribing *aconitine* without specifying what kind they intend. They are not aware that there are *four* or *five* different kinds in the market, each of them in vogue or preferred in some particular country or locality—one being the pure, crystallized alkaloid of great power; another an amorphous substance of comparatively feeble strength; another one made by a different process, or perhaps from a different kind of aconite, being of an intermediate strength, etc.—and that they are liable to have the most powerful dispensed when they perhaps intended the weakest, or *vice versa*. Would it not be useful to present to the medical profession, once a year at least, a concise summary of important matters of this kind, which would suggest themselves from time to time? As a rule, physicians do not read pharmaceutical journals, or circulars issued by chemical houses, hence information regarding subjects like that above mentioned often reaches them only when some serious accident has happened. If there were a source of information on topics of this kind, prepared by pharmacists specially for the benefit of physicians, much good would result. On the other hand, physicians often observe objectionable features connected with the form or efficacy of pharmaceutical or galenic preparations—as for instance deficiency of therapeutic action due to improper vehicles, improper coating, etc. The same medium of communication could be used for drawing the attention of the pharmacists to these matters.

If it is conceded that such a mutual exchange of information or of problems is desirable, it will not be difficult to devise a plan by which it may be carried out. The writer suggests the following, at least as a basis upon which something better may perhaps be erected:

1. The American Medical Association, through its proper Section (or in any other way that may be determined on), may annually appoint *seven* (or any other number) members, who, together with a like number of pharmacists, who may be appointed by the American Pharmaceutical Association, shall constitute the "Committee on Therapeutics and Pharmacy" (or whatever other name may be given to this).

2. This committee shall elect a chairman and vice-chairman, only one of whom shall be chosen from the same profession. These two officers shall also be the chairmen of their respective sections (medical and pharmaceutical) in the committee.

3. The committee may either hold joint sessions at such times as may be agreed upon, or it may transact its business by correspondence.

4. Either section of the committee shall be authorized and instructed to consider any professional questions or problems which may be submitted to it by the other, and after deliberation, to give such an opinion or such a decision as the subject may warrant, from the standpoint of the profession rendering the opinion or decision.

5. The section of the committee making the request or appeal shall bring the reply or decision of the other to the knowledge of the whole of its own profession, or, when this is unnecessary or inadvisable, at least to the notice of those to whom it more particularly applies.

6. The committee, or, if so determined by it, either or both of its sections separately, shall annually report at the joint meeting of the two professions (or say to the Section on Materia Medica and Pharmacy of the American Medical Association?) the nature of the questions and problems mutually submitted, if any, and the respective opinions or decisions rendered. These decisions shall be subject to a revision, if one is called for, at this meeting.

7. Each section of the committee shall annually present a report upon professional topics which it may be thought particularly necessary to bring to the attention of the other profession. Thus, the section on pharmacy may present, for instance, a report on new remedies, accompanied by practical suggestions as to their best mode of administration, as to precautions to be observed in prescribing them, as to incompatibilities to be avoided, and similar topics. And it may submit questions or problems involving *therapeutics as it affects pharmacy* to the other section, with a view of having them answered or decided. The section on therapeutics may, in its turn, present problems or questions involving *pharmacy as it affects therapeutics* to the other section for solution or answer.

In presenting this plan, the writer had in view scientific professional topics rather than ethical ones. There is no doubt that the latter would also form an abundant source of discussion and that this would, if properly conducted, bring the two professions still closer together; but it will under most circumstances be preferable to relegate such topics to the general annual meeting, there to be fully discussed and decided, rather than to have them passed upon by a small committee, the action of which may after all not be finally endorsed by the Association. On the other hand, a reversal of any decision by the committee on *scientific* topics, rendered after proper study and discussion, is scarcely to be apprehended.

The practical benefit which may be expected to be derived from an active coöperation of the two professions in the manner above outlined, provided the plan is fairly tried in practice, are believed to be such that the annual reports of the joint committee would be looked forward to with eagerness and interest.

New York, May 20, 1892.

MR. JOUN L. WOODS, of Cleveland, Ohio, made a Christmas gift of \$125,000 to the Medical Department of the Western Reserve University.

SECTION ON MATERIA MEDICA AND PHARMACY.

The sessions were held in the building of the Detroit Young Men's Christian Association, on the afternoons of June 7, 8 and 9. Dr. Frank Woodbury, of Philadelphia, Chairman of the Section, occupied the chair. On account of the absence of Dr. Whelpley, of St. Louis, Dr. F. E. Stewart, of Wilmington, Del., kindly accepted the position of Secretary *pro tem*. A delegation from the American Pharmaceutical Association was present and contributed largely to the proceedings. Among those present were Joseph Remington, Professor of Pharmacy in Philadelphia College of Pharmacy; Dr. A. B. Prescott, of the University of Michigan; Dr. H. A. Hare, of Jefferson Medical College; Professor P. W. Bedford, New York; E. H. Squibb, M.D., Brooklyn, N. Y.; H. W. Snow, Omaha, Neb.; Lewis C. Hopp, Cleveland, O.; J. E. Clarke, M.D.; H. W. Snow; A. S. Parker; J. W. Rabe; F. W. Jackson; F. A. Thompson; Prof. Eli H. Long, Detroit Medical College, and others.

The Chairman, in opening the deliberations of the session, directed attention to the evident disposition of the Association to devote more time to scientific work, and thus greatly increase the usefulness of the Sections. A peculiar feature of the Section on Materia Medica and Pharmacy, is that the Association has formally invited the American Pharmaceutical Association to be represented by delegates who shall participate in its scientific work. This recognition of the high standing of representative pharmacists is a just tribute to their professional attainments, and establishes pharmacy as a department of medical science. This is a consummation of immense value to both medicine and pharmacy; and that we have been able in any way to assist in bringing it about, should be a subject of congratulation. Its consequences upon the development of pharmacy in this country must be great and far-reaching. Biological chemistry and practical pharmacy are closely related and should be studied together. The present aspect of medicine, speaking from the therapeutic standpoint, is largely chemical, and is mainly based upon chemical ideas. Nutrition is largely a chemical problem. Indeed, we might almost represent health by a very complex chemical formula, graphically written, so as to express exact molecular composition. Various modifications and substitutions may take place, representing departures from the normal, more or less marked and corresponding with certain diseases or diatheses. While the researches of bacteriologists have revealed specific micro-organisms characteristic of different infectious diseases, later observations serve to establish the fact that these so-called disease germs do not so much cause disease directly by their numbers as they do so indirectly by their chemical products, which enter the blood and act as toxic agents. The important relation of pharmacy to medical practice is, that it supplies chemical substances capable of acting as antidotes to the poisonous action of these agents. As illustrations we have quinine and arsenic against malaria; Koch's tuberculin against phthisis; acids against cholera, etc. It may be regarded as demonstrated that phagocytosis is influenced materially by chemical substances.

The first paper was one by Dr. Albert B. Prescott, of the University of Michigan, entitled "Caffeine and the Question of Its Isomerism."

In the absence of Dr. E. L. Patch, of Boston, his paper on "Examination of Market Fluid Extracts" was read by title.

A paper on "Pharmacy at Health Resorts," by Dr. F. E. Stewart, was also read by title.

Prof. Joseph Remington, of Philadelphia, read a paper entitled "Prescription Exigencies."

SECOND DAY—JUNE 8.

The discussion on the Revision of the United States Pharmacopœia was opened by Prof. Joseph Remington, of Philadelphia, a member of the Committee on Revision. He stated that the Pharmacopœia is rapidly approaching completion and that much of it is already in type. It is believed that the work will appear before the end of this year. Some important changes have been made, the most notable being the adoption of the metric system in the formulæ. The hope was expressed that this change would be approved and supported by the members of this Section.

The following resolution offered by Dr. Prescott was unanimously adopted:

Resolved, That we desire to urge upon the medical profession the desirability of the direct use of the Pharmacopœia of the United States by the physician himself, as a handbook of reference in materia medica.

That we urge upon teachers of *materia medica* such a direct use of the Pharmacopœia, by classes of students of medicine, as will ensure their habitual familiarity with the work itself.

Dr. Prescott said he desired to testify to the large labor undertaken and carried out by the Committee of Revision. As a member of the revision committee of 1880, he has full realization of the work involved. The committee of that revision expended the residue of the receipts from copyright in publishing a digest of published criticisms upon their work. A great deal of time has been expended by this committee in consulting these published criticisms. Also a great deal of experimental labor has been devoted to their work, as he said he knew from a reading of portions of the circular correspondence of the committee which had been kindly placed in his hands.

The Chairman opened the discussion on "An International Pharmacopœia." He stated that the adoption of an International Pharmacopœia has been under consideration for a number of years. The present seems a particularly propitious time for renewing the agitation. Americans read English and Continental medical journals and books, and extracts from these, containing formulae, are constantly reappearing in American journals and text-books. As there are marked differences in strength among many products bearing the same name (such as tincture of belladonna), and as even the ounce of water is not the same in the British and United States Pharmacopœias, an International comparative commentary upon the different pharmacopœias, containing the principal drugs in use by civilized nations, with their preparation, seems necessary. Such a work would be most convenient for reference, both for physician and pharmacist.

On the matter of an International Pharmacopœia Dr. Prescott said that he believed there was a proper field for this work, as a brief work, for the coordination of the several National Pharmacopœias, with definition of only the most important and frequently used articles. He hoped it would not be misapprehended, as a work designed at all to supersede the pharmacopœias of the several countries.

A series of resolutions was offered thanking the Committee on Revision for their valuable labors upon the Pharmacopœia, and requesting that in all doubtful questions coming up for decision preference would be given to those that would facilitate the creation of an International Pharmacopœia. The resolutions were unanimously adopted.

THIRD DAY—JUNE 9.

A communication by Dr. Charles Rice, of New York, on "Collaboration in *Materia Medica* and Pharmacy," was read and discussed.

The suggestions contained in Dr. Rice's paper were referred to a committee of conference to report at the next annual meeting.

The following papers were read by title: "Europhen," by Dr. J. V. Shoemaker, of Philadelphia; "Tablet Triturates and Dosimetric Granules," by Dr. Wm. F. Waugh, of Philadelphia; and "Notes on Therapeutic Novelties," by Dr. I. N. Love, of St. Louis.

The Business Committee of the Section was elected as follows: Dr. Horatio C. Wood, of Philadelphia; Dr. F. E. Stewart, of Wilmington, Del.; and the Chairman of the Section.

The election for officers resulted in the reelection of Dr. Frank Woodbury as Chairman, and the election of Dr. F. E. Stewart as Secretary.

PRESCRIPTION EXIGENCIES.

Read before Section on *Materia Medica* and Pharmacy, at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

BY PROF. JOSEPH P. REMINGTON, Ph.M.,
OF PHILADELPHIA, PA.

"Every pilot
Can steer the ship in calms; but he performs
The skillful part, can manage it in storms."

—Sir J. Denham.

The prescription is justly regarded by both professions as the most important link in the chain which binds them together. Upon the insignificant scraps of paper are traced the characters which represent the conclusions reached by the practitioner after most serious consideration of the patient's case and to the earnest physician the writing of the prescrip-

tion is his most responsible duty. Notwithstanding the exceptions to the rule that are constantly forced to the attention of the pharmacist, safe ground can only be held by assuming that the physician always means what he writes and writes for exactly what he means. But, exigencies arise, we are all fallible, and "errare est humanum" must never be forgotten. Constant vigilance must then be the rule for the apothecary. Yet it must be admitted by all that when the vast number of prescriptions that are written every day are considered, that very few serious errors occur it must also be noted that with the great development of modern pharmaceutical methods, systematic habits and checks are now used, which reduce the danger arising from ignorance, carelessness or lapses, to a minimum.

It has occurred to the writer that it might prove of some service to call attention to a few of the more common exigencies, many of which require skill, tact and judgement to successfully master. At the present time, every careful pharmacist uses what is known as the checking system. By this is meant the calling off by the compounder to a second person the various ingredients with the weights or measures used of the prescription. Before this method came into general use, many instances are on record of mistakes occurring from the use of the wrong ingredient, from the omission of something, or from an error in writing the label.

In one recorded instance, a prescription was compounded by the proprietor in which one of the principal ingredients was omitted. The bottle containing the medicine was handed to the boy of the family who started to take it home. When the pharmacist returned to his desk, he realized that the principal ingredient had been left out. He quickly explained the situation to a bright-witted boy, who managed to reach the messenger carrying the bottle before the latter had arrived at his destination. It was but the work of a moment for the embryo pharmacist to stumble and fall in such a manner against the bottle that it fell to the ground. Of course the usual pleasantries (?) were exchanged but it ended in the apothecary's boy reluctantly promising to have the prescription compounded without expense and delivered at once.

Nearly every pharmacist can recall instances of a persistence in adhering to an erroneous name or quantity by a physician in writing a prescription. Notwithstanding the fact that the compounder is positively certain that the physician does not want what he has written for and the true state of the case has been set before him, so firmly has the error become wedged in his inner consciousness, that he indignantly persists in having the prescription compounded exactly as he has written it.

An amusing instance of this occurred in the writer's personal experience. One of the most celebrated practitioners in Philadelphia wrote a prescription which was sent to be compounded. It was as follows:

R. Troch. chloroformi No. xii.
(Gr. v.)

Sig. Take one every two hours until relieved.

Suspecting that this was an instance of persistent adherence to a wrong impression, a messenger was sent with a note to the prescriber calling attention to the fact that there must be some error, as there would be no certainty that the patient would get any

chloroform, owing to its volatility, even in the first lozenge. The messenger was told very promptly (and evidences of wrath accompanied the communication), that Mr. — better compound his prescriptions just as they were written and that he was too busy to be bothered by such trivial interruptions. The assistant quickly returned with the tart reply and Mr. —, dutifully (and let us hope humbly) proceeded to prepare the chloroform lozenges, when suddenly the front door was thrown open and a flashing vision crossed the threshold; the next moment, a beaming face, adorned by the traditional gold spectacles of the wearer, was thrust around the prescription counter. "I beg your pardon, Mr. —, but I did not want chloroform but chloral lozenges." It is hardly necessary to say that the incident closed without prejudice to the patient.

Faulty abbreviations are constant sources of perplexity to the pharmacist. It would be far beyond the scope of this paper to enumerate even the more important of this class and it is only the cautious, intelligent pharmacist who has not only the knowledge, but more than this the intuition with which to select the substance intended by the physician and send it on its mission of healing. In this connection, I trust that I may be pardoned for alluding to an annoyance which has become widespread in this country. It is the writing in the place of the time-honored "Signa," the words, "As directed," often abbreviated "As dir." It has been urged in extenuation and in justification of this habit that the patient was intelligent and had no difficulty in understanding the verbal directions and that they were too long to write upon a label, etc., etc.: my brethren in the pharmaceutical profession will bear me out in saying that very often the patient will say when the finished prescription is handed to him, "How am I to take this?" "Well the doctor has given you the directions, has he not?" Yes he did but I have forgotten them." "Had you not better ask him?" "Oh, no, that will never do. That means two dollars more." So rather than pay the physician another visit, the patient takes his chance and probably makes a mistake. When a faulty abbreviation occurs with an "As directed" for a "Signa," the combination becomes very puzzling.

R. Hyd. chlor. grs. x.
Sig. As dir.

A natural delicacy which can be well understood prevents the apothecary from asking any questions of the patient regarding the prescription, for fear of throwing an element of doubt or suspicion around it. Thus we have presented another "Prescription Exigency." Most pharmacists would probably ask the patient how he was told to use the medicine and thus a clue would be offered which might or might not lead to satisfactory results. Unless the answer was unmistakable, it would be unsafe to proceed. Then the statement could be made that this prescription would have to be sent by messenger as it would take "considerable time to compound it." It is needless to say that no statement need be volunteered that the greatest share of this time will be spent in hunting the physician who wrote it.

The development which is ever going on in matters pharmaceutical has educated the public to expect bright transparent liquids for their medicines; and, when such are not dispensed, critical remarks are sometimes forthcoming. The thoroughly educa-

ted members of both professions know very well that the transparency of a liquid sometimes means that the greater part of the active principle of the prescription has been left upon the filter; and, the question which is presented to the pharmacist nearly every day of his professional life is, "Should or should not this prescription be filtered before dispensing?"

The behavior of solvents towards certain chemical substances, the extent, character and condition of the precipitate formed, the effects of temperature, are all factors which must be carefully weighed in the balance; and, it will be easily seen that a large fund of knowledge is required not only of the reactions of the official substances, but also of the physical and chemical properties of the immense number of the new synthetical products, which are crowding the shelves of the apothecaries and filling the coffers of the jubilant foreign manufacturers.

A frequent cause of friction arises between physician and pharmacist because of a difference of opinion or practice among pharmacists in the matter of filtration. A physician writes a prescription which is slightly incompatible; a precipitate (trifling possibly) ensues. The pharmacist, Mr. A., who compounds it concludes that it is unimportant, filters it out and dispenses the prescription in a transparent condition. The doctor sees the prescription at the patient's house, notices it, is pleased with the results and prescribes it in another case. This time the prescription goes to a different apothecary, Mr. B., who thinks that the precipitate may contain some activity and therefore it better not be filtered. The physician sees this prescription at the house of the patient and may say to him, "Why don't you get your prescriptions of Mr. A.? This muddy mixture is not right." The patient of course does not wish to pay for a prescription which has been improperly compounded, enters complaint, and there is very apt to be some hard feeling. The apothecary retaliating probably by showing the patient that the fault lies with the doctor who wrote the prescription, because he did not know that precipitation would take place. Due consideration and a proper spirit of professional etiquette should inspire the members of both professions and under no circumstances should the patient be a witness to differences of opinion.

The question of the use of cautionary or poison labels upon prescriptions has been fortunately settled legally in a satisfactory way and knowledge of this should be spread as far as possible. An apothecary of excellent reputation on one of the principal streets of Philadelphia, a few years ago, received a prescription from a well-known physician which ordered tincture of nux vomica to be taken in five drop doses. It happened to be compounded by a very conscientious and as it proved an over careful assistant, who reflecting that the bottle might be placed within the reach of children (and thus become dangerous) pasted upon the bottle a poison label. It happened that this particular prescription was for an old and hypochondriacal lady, who took fright immediately on seeing the poison label, sent for the doctor and peremptorily discharged him for daring to prescribe poison for her. He naturally sought the apothecary and what took place at the interview can well be imagined. The order went forth, however, from the apothecary that thereafter no prescription should be labelled "poison" except when so ordered by the physician.

Very remarkably not long after this occurrence, a family having vacated rooms in a tenement house were succeeded by a new tenant. As is customary in such cases, some of the friends of the incoming family aided in the moving. One of the inquisitive helpers found a bottle of sugar-coated granules, in one of the closets; and having seen some candies which resembled the granules, distributed them among the rest of his friends and they were eaten with apparent satisfaction. Violent convulsions ensued, medical assistance was summoned but one of the helpers lost her life. Investigation showed that the bottle contained granules of strychnine; that the label showed that they came from the same drug-store in which the conscientious assistant was employed and that this time the rule—not to put a poison label on a bottle unless ordered by the physician—had resulted in a death and the apothecary appeared to be empaled on both horns of the dilemma. The next friend of the unfortunate girl entered suit against the apothecary for negligence in not labelling the bottle “poison.” But the case was thrown out of court without much difficulty, the ruling being that no blame could be attached to the apothecary as he had strictly followed the directions of the physician. The case excited a great deal of interest; many physicians going on record, that it was a vital necessity in many cases that the character of the medicine should not be known by the patient. This rule can then be formulated—poison labels are not to be placed on prescriptions unless ordered by the physician.

In connection with the subject of labels, it may often occur to the mind of the physician that he sees now frequently what are known as “Shake well” labels on liquids, that appear to be perfectly transparent. This is probably due to the fact that several dangerous poisonous cases have occurred through the precipitation of scanty, colorless precipitates. The mixture of bromide of potassium with sulphate of strychnine was one of these. Insoluble bromide of strychnine was produced which settled at the bottom of the liquid. The whole quantity of strychnine in the four ounce mixture was taken at one dose. It is an unfortunate peculiarity of this class of mixtures that the alkaloidal precipitates are not visible at the time the prescription is compounded, but they slowly settle out in the course of a few hours. This would be very likely to escape the notice of any one and on this account the careful pharmacist places a “Shake well” label upon the bottle, so that in case of precipitation, the patient will by shaking the mixture be sure to get the due proportion of alkaloid in each dose.

The writer regrets that space will not permit him to mention many other “exigencies” in prescription practice; but it is a source of gratification that probably at no time in the history of the world have pharmacists been so thoroughly trusted by physicians as at the present. The true pharmacist is always sensitive upon the question of additions or alterations in a prescription and he will never deviate from the rule, to permit no addition or alteration, which will interfere with the obvious intention of the prescriber. But no true physician will object to such alteration or addition if strictly within this rule. It is absolutely impossible for the busy practitioner to retain in his memory the varying degrees of solubilities of the great mass of chemical sub-

stances that are used to-day in the treatment of disease. Separation, precipitation, dissociation are almost always the rule. If by the addition of a little acacia, the active resinous ingredient of a tincture is prevented from adhering to the sides of a bottle and made to form a part of a homogeneous mixture; or if through the neutralization of the spirit of nitrous ether, the sodium salicylate in the mixture is held up; or if through the heating of one of the liquids, perfect solution is effected; and if the rule above quoted is never deviated from, then does the pharmacist truly fulfill his mission and become a most efficient co-worker.

Self-interest, lack of sufficient inducement, and liability of discovery are all powerful incentives in keeping the pharmacist who is not amenable to higher motives, from what is called tampering with the physicians’ prescriptions. Wherever a deviation from the strict interpretation is demanded, it is the pharmacist’s duty to render at once to the prescriber an explanation of the reasons for making any addition or change. As no pharmacist cares to risk the chances of an encounter with the physician, which is often times accompanied by at least unpleasant remarks, it follows that in the vast majority of cases additions and alterations are not only not made, but never suggested, thus it is that many prescriptions are sent out showing evidences of incompatibility, crudeness, and in some cases utter failure in accomplishing the objects of the prescriber.

The policy of “*vis inertia*” is, to most compounders the easiest and the simplest to adopt in order to avoid criticism and a possible contest with the physician. If a patient should complain of the unsightliness or inefficiency of a mixture, the reply usually is, “Well, you must not blame me for that. The prescription is compounded exactly as your doctor wrote it.” But, brethren of both professions should these things be? Thousands of workers throughout the world are busily employed in wresting the secrets from Mother Nature in the search for some new substance to combat disease. Millions of capital are invested by shrewd earnest men in developing to the utmost the latest discoveries of science, for the use and benefit of the sick and helpless. The members of the medical profession know what sacrifices they have endured, what privations they have suffered, what years of labor it has cost to fit them to practice their profession. On the other hand has not the pharmacist toiled unceasingly, studied unremittingly, and suffered in a similar way from privation and sacrifice to fit him for his profession? Shall all this go for naught? Have not all of these earnest laborers had but one goal—the preparation of remedies for the cure of disease?

What matters it, if millions have been spent in the manufacture of a remedy, if when the supreme object of its existence is reached it falls short or fails of its mission, through the lack of co-operation or of a proper state of feeling between the doctor and the druggist. The educated, hard working pharmacist who faithfully labors to perform all of his duties, is worthy of the support of every physician in his neighborhood; confidence begets confidence and if this is once thoroughly established, the settlement of a “prescription exigency” when it arises becomes a simple problem.

EYE TROUBLES WHICH CONSTITUTE A FREQUENT SOURCE OF HEADACHE, VERTIGO AND NAUSEA. AND OTHER NERVOUS DISORDERS.

Series of four lectures delivered at the Fourth Special Course of the Chicago Polyclinic.

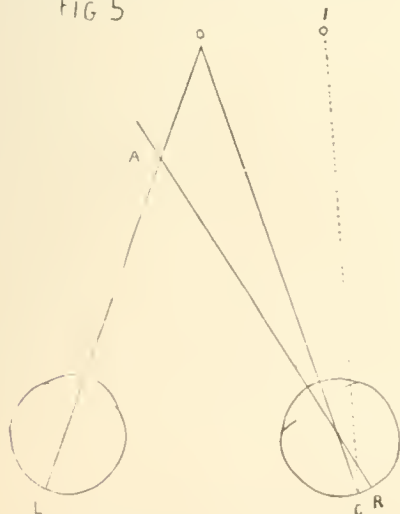
BY F. C. HOTZ, M.D.,
PROFESSOR OF OPHTHALMOLOGY.

LECTURE III.—PARALYSIS AND PARESIS OF THE OCULAR MUSCLES.

In the *third group* of eye troubles which are known to influence the nervous system, we again find the seat of disturbance in the ocular muscles. But the muscular disturbance is of a very different kind from that of the second group. There we found muscular over-activity; here we have to deal with defective muscular action, *paresis and paralysis of the muscles*: there we saw binocular vision maintained, here binocular vision is abolished. The affections of the second group are a particularly frequent source of pain in the head and other neuralgic symptoms: the paralytic affections induce vertigo, confused vision, and nausea, but never any headache or any other neuralgia.

In executing the movements of the eyeballs for the purpose of adjusting the visual lines in the acts of binocular vision the muscles of both eyes act together in sets; and the easy and accurate adjustment of the visual lines require that the same nerve impulse brings forth the same degree of action in the coöperating muscles of either eye. Any loss of action in one muscle results in a limitation of motion of the eye in that direction for which the coöperation of the weakened muscle is chiefly demanded. This limitation of motion causes all the symptoms (both local and general) which characterize the paralytic affection of the eye muscles, and which I will now point out to you in the case before you. It is a case of paralysis of the externus of the right eye; and the first thing which attracts your attention is the convergent squint of the right eye. When the patient wishes to look at an object (*o*) 10 or 15 feet

FIG 5



or further away, the weak externus is unable to turn the right eye sufficiently to connect its visual line with the object. The visual line of the right eye (*ra*) meets that of the left eye at a point (*a*) which is nearer than the object (*o*); or, as we say, the right

eye is converging. You therefore see: 1. *The limited motion results in a false position of the visual line, or in strabismus.* This strabismus becomes more marked (that is, the right eye becomes more convergent) when I make the patient turn his eyes to the right, because the paralyzed externus cannot turn the right eye in that direction. But when the patient turns his eyes to the left, the convergent strabismus quickly disappears, the eyes are straight; for the externus of the right eye has to be perfectly relaxed when this eye turns to the left; and therefore, whether paralyzed or not, the externus has no influence upon the position of the visual lines in this direction. This change of the degree of strabismus according to the position of the object (to the right or to the left) is peculiar to squint caused by the paralysis of a muscle (paralytic squint), and distinguishes it from the ordinary form of convergent strabismus where the degree of convergence is the same, whether the eyes are turned right or left or straight ahead.

2. *The false position of the visual line causes diplopia.*—Let this patient look at a light some little distance away, and he will see two lights side by side. Why? Because the right eye being convergent, the image of the light (*o*) is formed on the retina at a point (*c*) lying to the inner or nasal side of the macula (*r*), while the left eye receives the image of the light directly on its macula (*l*). But we see an object as a single object only when its image is produced upon identical points of both retinae, and this condition not being fulfilled in the case before us, our patient sees the light in its true place (at *o*) with his left eye, and a second light (*o*) to the right of the other with his right eye: for we are accustomed to refer retinal impressions located to the left side of the macula to objects in space located to the right side of the object we are looking at; or in other words, an image produced on the nasal half of the retina of the right eye (or the temporal half of the retina of the left eye) is projected into space as an object situated at our right side; and *vice versa*, retinal images located to the right of the macula (on the temporal side in the right eye, or on the nasal side in the left eye) are projected back into space as objects situated at our left side.

Diplopia is the most important symptom of paralysis of ocular muscles, because its presence enables us to detect paralytic disturbances even when the resulting deflection of the visual axis (the strabismus) is almost imperceptible to our eyes; and because the double images tell us at once which muscle is at fault.

For the paralysis of every one of the ocular muscles shows the double images in a peculiar configuration different and distinct from their relative positions observed in the paralysis of every other ocular muscle. We, therefore, have as many different configurations of double images as there are ocular muscles; their number is bewildering to the medical student, and the unsystematic way in which they are discussed and treated in the text-books, greatly adds to his confusion. It is no wonder that when he has finished the chapter on ocular paralysis he feels very much like the student in Goethe's Faust,

"So stupid from all he has read

As if a mill-wheel whirled in his head;"

and imagines the diagnosis of ocular paralysis one of the most difficult problems to solve.

And yet I say—and I am going to demonstrate it you—the correct interpretation of the diplopia tests is a comparatively easy task, if we only get a little system into our work and have a clear conception of the physiological function of each ocular muscle. In the first place it is, of course, necessary to know at once which of the double images belongs to the right and which to the left eye. For this reason we put a red glass before one eye because the images can then be distinguished by their different colors. Now, if you make it a rule to put the red glass always before the same eye (the right eye), for instance, of the patient, you will soon get so thoroughly accustomed to identify the red light with the right eye, that the relation of the images to the eyes and the question of homonymous or crossed images is decided by you without hesitancy and without any mental effort. We speak of *homonymous images*, if the patient (having the red glass before his right eye) sees the red light to the right of the other, because the image stands on the side of the eye it belongs to; but when the image has crossed over to the other side, when the red light appears to the left of the other, we speak of *crossed images*.

The principal rotations our eyeballs make in the act of seeing are of three kinds: looking sideways, upwards or downwards. Each of these movements is under the control of a different pair of muscles; the lateral movements are controlled by the internus and externus; the upward movements by the superior rectus and inferior oblique; the downward movements by the inferior rectus and superior oblique. Now, any paralytic disturbance of the harmonious coöperation of the muscles in any one set causes diplopia and the images will appear displaced in the line of rotation which this set of muscles controls. If the disturbance affects the lateral movements of eyes, the images appear side by side, and we will call it *lateral diplopia*; if the disturbance occurs in the vertical movements, the images are displaced more or less on a vertical line, and we will call it *vertical diplopia*. This vertical diplopia may occur only when the patient is looking up (vertical diplopia in the upper visual field), or when he is looking down (vertical diplopia in the lower field).

This simple classification of the diplopia tests enables us quickly to trace the paralytic disturbance to one of the three sets of ocular muscles; for lateral diplopia points to the first set (internus and externus); vertical diplopia in the upper field points to the second pair (superior rectus and inferior oblique), and vertical diplopia in the lower field points to the third pair (inferior rectus and superior oblique).

Now, having narrowed down our investigation to one pair of muscles, can we learn also from the diplopia test which muscle of the pair is at fault? Nothing is easier than this; for in each pair the paralysis of the one muscle causes more or less abnormal convergence, while the paralysis of the other muscle causes more or less divergence of the affected eye, and if you bear in mind that paralytic convergence is *always* associated with homonymous diplopia and paralytic divergence *always* with crossed diplopia, you have the unfailing evidence to determine which muscle in the pair is affected. And upon these facts we can prepare the following schedule of the diplopia tests for a quick diagnosis of the paralytic affections of the ocular muscles:

1. *Lateral Diplopia.*

- a. Homonymous images—paralysis of externus.
- b. Crossed images—paralysis of internus.

2. *Vertical Diplopia in Upper Field.*

- a. Homonymous images—paralysis of inferior oblique.

- b. Crossed images—paralysis of superior rectus.

3. *Vertical Diplopia in Lower Field.*

- a. Homonymous images—paralysis of superior oblique.

- b. Crossed images—paralysis of inferior rectus.

Gentlemen, you see this schedule covers all the six ocular muscles, and leads clearly to the muscle which is at fault; the only thing left for completing the diagnosis, is to decide to which eye the faulty muscle belongs. To settle this point we move the light to the right and to left, upwards and downwards and note the changes in the relative position of the images. Let me illustrate this experiment in the case before us. Our patient says he sees two lights on a level and the red light on the right side; according to our schedule, lateral diplopia with homonymous images indicates paralysis of the externus. Now, to find out whether the externus of the right or left eye is at fault, I move the light to the left and the patient declares the images are coming together; he sees only one light; and now I move the light toward the right, and the patient says the two images are getting further away from each other. This experiment shows that the limitation of motion (which causes the false position of the visual line and thereby the diplopia) is manifested when the eyes turn toward the right; and as this rotation is executed by the coöperation of the externus of the right eye and the internus of the left eye, and we know our case is a paralysis of the externus, we now come to the conclusion that the externus of the right eye is the faulty muscle.

3. *The limitation of motion perverts the patient's judgment as to the true position of objects in space.* I will hold this lead pencil pointing to the right in front of the patient and bid him, with his left eye closed, quickly to strike with his right hand the end of the lead pencil. What do you see? He misses the pencil, every time striking too far to the right. And he does it because he believes the pencil to be right there where he strikes down. For we are accustomed to determine the location of an object chiefly by the muscular action required to turn the eye toward the object. The further, for instance, an object is to our right side, the greater is the effort the externus of the right eye has to make to bring its visual line to bear upon the object. The paralyzed externus of our patient expends all energy it has left in the attempt to turn the right eye just a few degrees to the right; but the patient receives the feeling that the externus is making a great effort, and guided by this impression he judges that the eyeball is making a great rotation toward the right, and accordingly concludes the lead pencil must be situated a good way to the right. And if he could not turn the right eye outward at all, the retinal image of the lead pencil would not be received on the macula, but to the nasal side of it, and, by the law of projection the patient would locate it further to the right than it actually is.

4. This perversion in judging the true position of objects, and the diplopia cause the greatest confusion of vision, making it often very difficult for peo-

ple to walk straight and to get along well on a crowded street. They are the causes of the vertigo, (therefore called *visual vertigo*) and all the other nervous symptoms. And as the visual embarrassment is removed as soon as the affected eye is closed, patients are usually very quick in finding this out and relieve themselves of the embarrassing diplopia by wearing a little shade over the faulty eye.

Or they will overcome the difficulty in another peculiar way. You will notice that when this patient is looking at you, his face is not turned squarely toward you, but to his right side. He has found out that when he turns his eyes to the left, the diplopia disappears, and he utilizes this fact to avoid the double images. He turns his face to the right so that the eyes are practically turned to the left, which is looking straight ahead. These peculiar attitudes of the head are very characteristic for the different forms of paralysis.

All the symptoms I have pointed out are well marked only while the paralysis or paresis is recent. After lasting many months the case loses more or less of its typical features. The patient, for instance, learns to suppress the second image, and also learns to correct the error of projection; and hence, he is no longer troubled by visual vertigo and its associated symptoms.

I must not omit, however, to state that I am speaking only of those cases of ocular paralysis caused by extra cranial lesions, and by such intra cranial lesions which have no disturbing influence on the nerve centres. For in a great many instances the ocular paralysis is due to some grave cerebral disease which itself produces vertigo, and the other nervous disturbances I have mentioned as resulting from paralytic affections of the eye muscles. In these cases, of course, the ocular affection is not to be treated as the cause of the nervous symptoms, but must be regarded as a collateral phenomenon.

In conclusion, I wish to state that paralysis attacks some of the eye muscles far oftener than others. In 1871 Professor Graefe collected 328 cases of paralytic affections of the ocular muscles; in 145 cases more than one muscle was affected; in 183 cases the paralysis was limited to one muscle, as follows:

Paralysis of the Externus	105
Obliquus Superior	52
Rectus Inferior	10
Rectus Superior	9
Rectus Internus	5
Obliquus Inferior	2
Total	183

SOCIETY PROCEEDINGS.

American Electro-Therapeutic Association.

Second Annual Meeting, held in New York, October 4, 5 and 6, 1892.

WILLIAM J. MORTON, M.D., PREST.

FIRST DAY, OCTOBER 4—MORNING SESSION.

(Continued from page 78.)

Dr. Walker was glad that all did not share Dr. Massey's unfavorable opinion of Apostoli's electrode, for while watching Apostoli at his clinic, he had been pleased with all the instruments in use there. The speaker then referred to a case of a lady who had been referred to him for the removal of the uterine appendages for severe neuralgia. Thinking

that her condition did not justify such an operation, he advised electricity, but the patient would not consent to this, and another surgeon performed laparotomy upon her. When the abdomen was opened, no abnormality could be found, and the wound was therefore closed. The moral effect of this operation was to relieve her pain for several months. She then returned to the speaker, and submitted to Apostoli's treatment, and after a few weeks the pain entirely disappeared, and has remained away since then—a period of eighteen months. In connection with the paper just presented, it is particularly interesting to note that the pain in her case was *instantaneously* relieved by the faradic current.

Dr. Canaday remarked that he did not see that Apostoli's electrode differed very much from those commonly made in this country.

Dr. Margaret Cleaves, of New York, said her experience corroborated the statements made by Apostoli concerning the diagnostic value of the galvanic and faradic currents. Apostoli was one of the first to take the position that certain conditions could not be safely treated by the different forms of electricity, and if we all shared this view, there would be less reason for the prejudice which many gynecologists exhibit for electro-therapeutists. In her own practice, she always regarded uterine pain as indicating the necessity for an unusual degree of care in conducting any method of treatment.

Dr. W. F. Hutchinson said that although he had been using high tension currents for the past ten or twelve years for the relief of uterine and ovarian pain, he had not felt that he had accomplished much until quite recently, when he had constructed for him an apparatus capable of giving smooth and very rapid interruptions. By means of tuning forks he had been able to measure the number of vibrations, and had found that they were as high as 30,000 per minute, whereas in the ordinary induction apparatus, the number of vibrations was usually only seven or eight hundred per minute. Now, if the pain is destroyed by a certain faradic current of high tension and rapid vibration, and not destroyed by a smoothly flowing galvanic current, the conclusion is irresistible that the pain is due not an inflammatory process involving metabolic changes, but rather to a misplacement of the polarity of the cells of the body. He had long believed that the human body is made up of cells arranged in sections according to the poles of these sections, and that the passage of a current of sufficient strength reverses these poles, or throws them out of circuit. The theory is a new one, but as the whole subject is so little understood, every theory has its place and some value. The speaker also believed that each current has a distinctly diagnostic value.

The President said that he could not say from personal experience whether or not the fact that an electrical application caused undue pain, indicated the existence of pus in the adjacent tissues, yet he always looked upon this intolerance as a danger signal. Whatever be the cause of these pains, they are relieved by induction currents from coils having very fine windings, and by high oscillations of the static current, when administered either by sparks, or by the induced current from the Leyden jar coatings.

FIRST DAY, OCT. 4.—AFTERNOON SESSION.

G. Betton Massey, M.D., read a paper entitled

A NEW TREATMENT OF PROSTATIC HYPERTROPHY.

A proper presentation of the subject of the electrical treatment of prostatic inflammation and hypertrophy is divisible into several general propositions and statements. The first and most important statement that I wish to impress upon you is that the methods about to be advocated may be relied upon as a successful mode of dealing with

most cases of this troublesome affection. No method is worth the words to describe it unless this is more or less true, yet in this instance the claim of efficiency is specially noteworthy as the affection under consideration is generally regarded as incurable, and condemning its victims to merely mitigated misery for the balance of their days.

The second proposition may be put in the form of the question: Why and how does electricity cure these cases when properly applied? To answer this we must consider the nature of the morbid process and the character of the tissues involved, and apply to these facts the therapeutic deductions derived from the action of electricity in other analogous structures and affections. The prostate gland is a musculo-glandular body, the glandular tissue forming the bulk of its stroma, through which a multitude of muscular fibrils lace and interlace. The glandular tissue is in direct communication by continuity of structure with the glandular lining of the prostatic urethra. The affection under consideration: acute prostatitis and its sequelæ, does not differ essentially from such catarrhal affections as endometritis, rhinitis and other subacute inflammations of glandular mucous membranes; and most probably is caused or accompanied by the same microbic manifestations as those affections. The utility of the direct application of the galvanic current in combating the disease would therefore suggest itself to any one who had observed its value in endometritis. Of the suggestions to be derived from a parallel treatment of rhinitis I shall not now speak beyond mention of a series of experiments now being conducted by the speaker which already prove that nasal catarrh is a field of vast importance to the electro-therapist. Mildly cauterant of morbid surfaces and stimulant to the tissue changes of the whole organ, the direct application of the galvanic current to the prostatic urethra is quickly beneficial in changing the character of the morbid process in the glandular tissue. In addition to this resolvent action, another element of remedial power lies in the contractile effect of swelling currents on the muscular fibres so liberally supplied to the organ. It is the development of this constricting power of electric currents in the hypertrophied gland that forms the chief feature of my method, and as it is a most important feature in certain cases I have felt amply justified in designating the method a new treatment, without detriment to the credit due among others, to one of the fellows of this society. Dr. Robert Newman, who has done so much to attract attention to the value of electricity in prostatic disorders, I have seen little or no mention of the prostate as a muscular organ, and a recognition of this important fact is, in my opinion, the keynote to the most successful management of prostatic hypertrophy.

This catarrhal inflammation and hypertrophy are manifested in an organ closely analogous to the uterus, and in its several varieties and consequences, such as hyperplasia proper, true fibrosis, and myo-libromatous neoplasms, we have almost exactly analogous affections with those occurring in that organ. This being so, it merely follows that the curative treatment must be also analogous. Currents of five and eight milliampères, while useful in combating the more superficial prostatitis, will not cure the hypertrophies. As in fibroids of the uterus, we must bring the hypertrophied and degenerated organ under the influence of from 20 to 70 ma. This I have done frequently, the active pole, negative, being within the prostatic urethra, and the indifferent pad on the back. The only precautions used, in addition to scrupulous cleanliness of the electrode and gentleness of its insertion, being that the current was not permitted to remain at its strongest figure more than a few seconds as it was turned on and off at the controller to get the greatest constricting action with the least electrolytic irri-

tation. If this be repeated not oftener than five days no irritation will result, but rather a feeling of relief. In the intervals the same current strength is applied daily in the same manner through the rectal wall, the active electrode being an olive of proper size inserted into the rectum and pressed against the prostate, while the indifferent pad is on the abdomen. The primary faradic current should be used after the same method at each sitting, and I am inclined to look on it as an important adjuvant.

Under this treatment the shrinkage of the organ as a whole is soon manifest to the rectal touch, and as soon as a sufficient absorption of morbid products has occurred, with regression of interfering nodules and collars, the power and freedom of micturition will return.

During the progress of the curative treatment the catheter is passed as often as required, the instrument used for treatment serving the purpose of a catheter also at that sitting. Antiseptic dishing of the bladder is also not neglected at such intervals as the condition of the bladder demands.

A point of additional importance in the use of swelling currents of both varieties in prostatic disease is the fact that the expulsive power of the bladder is always below par in these troubles, sometimes overshadowing the condition of the gland itself, and for this condition the treatment described is of great value.

The effect of this treatment is greatest in the symmetrical enlargements of the gland, as it is in this variety that the muscular substance is capable of greatest response. In fibroid nodules in one lobe of the prostate the older method of continuous application is possibly the best, or we may resort to electro-puncture, though this last resort is undesirable on account of the difficulty of maintaining asepsis.

The instrument shown you is made from a silver catheter with large curve, which has been insulated everywhere with fused hard rubber except a bare surface about two centimeters long just back of the eye. Besides having the advantage of serving as a catheter, and thus saving double instrumentation, the eye at the end serves to notify us of the exact position of the bare spot previous to turning the current on. One of the chief advantages of this form of electrode is the ease with which it may be aseptized by heating in the flame of an alcohol lamp, the same heating permitting us also to repair any breaks that may have occurred in the thin hard-rubber coating of the instrument.

Discussion.

Dr. Rockwell was pleased to hear that the author had obtained such excellent results in the treatment of hypertrophy of the prostate by what must be termed an *ordinary* application of the current, for personally he had never been able to accomplish much by this method, although he had tried various plans of treatment and all sorts of instruments. In connection with this subject, he desired to refer to a unique case which had afforded him an exceptionally good opportunity for observation, from the fact that the patient had had suprapubic cystotomy performed on him. The prostate was enormously enlarged. By means of an insulated needle passed through the abdominal opening, the prostate was pierced to the depth of about $1\frac{1}{4}$ inch, and the gland subjected to a current of from fifteen to thirty milliampères. After several such treatments, the strength of the current was increased to fifty milliampères, and this caused a development of a swollen and very painful testicle, which necessitated a discontinuance of the treatment. Examination after the subsidence of this inflammation showed a positive decrease in the size of the prostate gland, sufficient to allow the patient to pass his urine freely. Subsequently the treatment was resumed, but this time the needle was introduced into the prostate through the rectum.

Dr. Massey, in closing the discussion, said that his experience had been limited to two cases. The first patient was seventy-three years old, and had been unable to micturate for some time. After the treatment this power was regained, and a year or more later, there was still no relapse. In the second case, the current was pushed up to seventy milliamperes, and after this treatment, rectal touch showed a decided diminution in the size of the gland.

OPENING OF DISCUSSION ON ELECTRIC CATAPHORESIS.

By Frederick Peterson, M.D., New York.

No definite scientific experiments had been made with electric cataphoresis in its medical aspects, I believe, up to the winter of 1888-1889, when I became interested in the subject while treating some cases of severe trigeminal neuralgia with galvanism. The references to the subject in text-books on medical electricity were meagre and unsatisfactory. Richardson, who in 1859 first called attention to what he termed voltaic narcotism, had subsequently retracted his opinions concerning it and abandoned its use. Adamkiewicz had written much more recently (1886) upon the diffusion of chloroform through the skin by electricity, but his methods had been so criticised and his results so disputed by men of eminence, that the very fact of the existence of such a force as cataphoresis seemed as undecided as ever. My first experiments were very carefully undertaken upon myself to establish to my own satisfaction in a scientific manner the fact or fallacy of anodal diffusion. Experiments and counter-experiments were made, with substances applied to the skin alone, with electricity alone, with drugs upon the cathode, and with drugs upon the anode, and all the details as to the kind of cells, number of cells, duration of application, quantity of electricity, size and character of the electrodes, were carefully recorded in order that there should be no mistake as to the results obtained. Then in order to exclude any error from personal equation, I verified these results upon medical friends and upon patients. The details of many of these experiments I published in my first paper,¹ so that any one who desired could repeat them and satisfy himself as to the truth of the statements I then made. Since then I have verified them over and over, and frequently demonstrated the process with various drugs to students at both the Polyclinic and Vanderbilt clinic, and all of the facts in my first paper and the several other papers I published later² have been confirmed and corroborated by many observers who have since taken up the matter of the anodal diffusion of various drugs through the skin or mucous membranes into the tissues. These facts may be briefly stated as follows:

There is, to use a gross figure of speech, a streaming movement of the electric current from the positive to the negative pole, in one direction, sufficiently powerful to carry with it particles of substances in solution through the skin or mucosa.

This property of the current, which we call cataphoresis, is purely physical and is not in any sense electrolytic.

There is no such thing as cataphoresis of a substance placed upon the cathode. The solution of the drug must be placed upon the anode, and the anode only. The process is in every sense an anodal diffusion.

The greater the resistance of the solution to be transfused the more powerful is the cataphoretic effect of the current.

By means of cataphoresis, medicaments may be applied locally to reach certain morbid tissues, to produce absorption, to act as an alternative, to bring about local anæsthesia, to relieve pain in superficial nerves.

For these various purposes many drugs have been em-

ployed, such as iodol, iodine, iodide of potash, corrosive sublimate, succinimide of mercury, strychnia, the citrate, benzoate and chloride of lithium, cocaine, chloroform, acornitia, menthol, onabain, strophanthin, carbolic acid, bellaborin, atropia and curarin. The details concerning these will be found in previous papers of mine already referred to.

As to methods of administering remedies by means of the anode, there are three: one the bath with the alternative or other agent dissolved in the water of the bath; one the use of a solution of a drug on any ordinary sponge electrode; and finally for exact dosage the use of the cataphoric electrode made for me by Messrs. Waite and Bartlett. This is merely a metal disc, upon which a disc of tissue paper is laid, and a drop or two of any solution let fall upon the paper. Thus when closely applied to the body there is only a thin film of a known quantity of the medicament between the metal surface and the skin, a fact which greatly accelerates the diffusion. The number of cells or milliamperes to be used depends solely upon the sensitiveness of the patient and of the particular part to which the anode is applied. The feebler the current the longer must be the application. The stronger the current the better for rapidity of electrical endosmosis.

This discussion has been arranged for the purpose of bringing the clinical results together of its use in various lines of practice, but very great interest centres also in the nature of the physical process by which substances are thus diffused, and I have invited two eminent electro-physicists, Mr. A. E. Kennelly and Prof. Houston, to deal with this question, that more light may be thrown upon its apparent obscurity and mystery.

ON THE PHYSICS OF CATAPHORESIS.

By A. E. Kennelly, Chief Electrician, Edison Laboratory.

The cataphoric action of electric currents, sometimes named electrical endosmose, whereby a liquid is electrically transfused through a porous septum, was discovered by Reuss in 1807. The history of this phenomenon, with its anomalies and complexities, that for many years baffled analysis and exhausted conjecture, but finally yielded before persistent research, is a grand epic, and an interesting episode of the nineteenth century. It was the measurements of Wiedemann, published in 1852, which evinced the principal laws controlling the action, and which were corroborated later by Freund and others. Quinek appears in 1861, to have first given that theory of the subject which was extended and more fully developed by Helmholtz in 1879, and which remains in vogue to the present time. The best description and account of cataphoresis is probably to be found in "Die Lehre von der Electricität" Vol. II. Chap. IV (Brunswick 1883), by G. Wiedemann, whose above mentioned researches have had so important a share in the development of the subject.

When two liquids, similar or diverse, are brought into communication through a narrow channel of insulating material—such as a capillary tube of glass, or by a combination of narrow channels in non-conducting material, (such as exist in a porous diaphragm of earthenware, wood, porcelain, parchment, membrane, etc.) and an electric current is passed from one vessel of liquid to the other, through the tube or diaphragm, a flow of liquid generally accompanies the flow of electricity, and in the same direction; that is, from the vessel whose electrical condition is conventionally described as positive, to that which is negative, and the liquid accumulates round the cathode. If the two liquids are dissimilar, there would be a movement in the channel across the common boundary, before the current passes, and due to that diffusion which, as we know, is a property of dissimilar fluids at confluence. Also if in virtue of any

¹ N. Y. Med. Journal, August 27, 1889.

² N. Y. Med. Journal, November 15, 1890; N. Y. Med. Record, January 31, 1891; Philadelphia Times and Register, March 21, 1891.

difference of level in the vessels, the liquids were not in equilibrium of pressure at the point of communication, there would be a motion in the tube, or a tendency to restore equilibrium in the ordinary way; but on passing the electric current, it is assumed from experimental results, that the flow due to electrical endosmosis is simply superposed upon such diffusional or gravitational currents as may happen to exist. In measurements of electrical transfusion, it is therefore essential that these extraneous influences should be either entirely eliminated, or duly taken into account.

Rare cases have been observed in which the electrical transfusion either opposed the electrical current in direction, passing from the negative to the positive liquid, or assumed the intermediate condition of failing altogether in appearance.

Given a definite porous septum, and liquid in its pores, the total quantity of liquid electrically transferred, depends only on the total quantity of electricity transferred, and at any instant the liquid current is directly proportional to the current of electricity, so that to effect a certain transfer of liquid, a weaker electric current must be sustained for a correspondingly greater time. Wiedemann also showed that the surface of the porous septum, the extent of active surface over which transfusion takes place, does not affect the results, and a current of one ampère will apparently transfer as much liquid cataphorically through one square inch as through twenty square inches of diaphragm in the same time. Similarly, the thickness of the diaphragm does not come into consideration, and one ampère will carry liquid at the same rate through a plug of plaster of Paris, whether this be five centimetres or five millimetres thick. For any given electrical transfer, however, the liquid transferred depends upon the substance of the diaphragm, the size and number of its pores or channels, the nature of the solution, and particularly upon the solution's resistance. With mercury, the effect has not been observed, and with readily conducting liquids the effect is very much reduced. The following cases will exemplify the great difference between the transfusory powers of different liquids under otherwise similar conditions. Two small porous earthenware cells, such as are used in batteries, were partly filled by the writer with a solution of pure zinc sulphate in distilled water to a density of 1.054 at 15° C. Immersed in more of this solution to the same level, outside and in, with zinc plate electrodes, the mean electrical transfusion into and out of the porous cells in four trials was 8.658 c.e., or 9.125 grammes per ampère-hour, or since an ampère is an electrical transfer of one coulomb per second, a transfusion of 2.535 milligrammes of liquid accompanying each coulomb, so that one milliampère would require $109\frac{1}{2}$ hours to transfer one gramme at this rate. The solution's resistivity was approximately 22 ohms at the observed temperature of 20° C., or in other words 22 ohms would be the resistance between parallel faces of one centimetre cube of the solution. With similar porous cells, but employing in place of zinc sulphate solution, distilled water, whose resistivity was found to be 194,000 ohms at nearly the same temperature, the mean observed transfer was at the rate of 5.440 grammes per ampère-hour, or 1.511 grammes to the coulomb, a transfer voluminally 628 times greater than in the previous case. These results are of course relative only, depending upon the particular quality and substance of the porous cells employed.

Wiedemann found the rate of transfusion to be approximately proportional to the resistivity of the aqueous solution of any given salt.

The accepted explanation for cataphoresis is based upon the same electrostatic force and motion by which Thales

first discovered, and placed electricity upon record, and by which light particles, pith-balls, gold leaves, etc., are made vehicles of energy, when electrified and brought into the vicinity of electrical charges. It is now a familiar fact that a charge of electricity at rest upon the surface of an insulated body, forms or is associated with an electrostatic circuit. Any other charge of electricity, say a pith ball charge, introduced into the circuit, will be acted upon by an electrostatic force. If the pith ball charge so introduced is relatively so small as not to sensibly disturb the circuit of the original electrification, the force with which the pith ball will be urged along the circuit will at any point be the product of the amount of the pithball charge, (the quantity of electricity it holds,) and the gradient of electrostatic potential at that point. If we imagine that the pith ball holds just one static unit of electricity, the electric force, measured in dynes, urging the ball along the circuitual path, is simply the local gradient of potential measured in static units. The geometrical disposition of electrostatic circuits are of course usually complex, as also the distribution of their potentials, so that this force is correspondingly variable from point to point; but we can take an electrostatic circuit of simple geometrical type, one which can also be practically realised with any reasonable degree of accuracy, and here study this action in its native simplicity, when released from the trammels of geometrical complication. Let us take two large plates of metal with plane surfaces, for example two large sheets of glass coated with tinfoil. Let these two plates be clamped by insulators parallel and opposite to one another, at a distance of say five centimetres apart. The geometrical condition of this system of conductors, forming in fact an air condenser, will be uniformly simple at all points between the plates, remote from their edges. Let one plate, A, be electrified to a pressure of say 3,000 volts, while the other, B, is connected to the ground. Then the difference of potential between A and B is 3,000 volts, and if we start from B, where the potential is zero, and move along the perpendicular towards A, the potential will steadily increase as we proceed, at the rate of 600 volts per centimetre, this being the uniform gradient at all points far from the plate edges. Half way across, the potential in the air would be 1,500 volts; and we might graphically depict the system by mapping out 3,000 equidistant, successive, equipotential plane surfaces, between A and B, each differing by one volt and 1-600th, of a centimetre. The electrostatic unit of potential happens to be almost exactly 300 volts, so that in these units, the total difference of potential between the plates is ten, and the rate of fall of potential from A to B, uniformly 2 units per centimetre. If now a unit positive static charge on a small pith ball were introduced between the plates, an electric force of two dynes would be exerted upon it at any point between A and B, distant from the edges, and since a dyne is a force slightly in excess of the earth's gravitational pull upon one milligramme of matter, the electric force on the pith ball would be about 2 milligrammes weight. Similarly if the charge on the pith ball had been eight units, the electrostatic force urging it along the straight line representing the path in the circuit, at the point it then occupies, would be 16 dynes or about 16 milligramme's weight.

A gradient of potential in air to the amount of one volt per centimetre, thus implies an electric force of 1-300th, of a dyne upon each static unit of electricity there introduced.

(To be continued.)

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SATURDAY, JANUARY 28, 1893.

MEDICAL LEGISLATION.

With a majority of the legislatures in session, medical legislation in different States is assuming renewed activity. About fifteen States remain that are substantially without any legislation whatever. A few others have very inefficient statutes, while the people of about one-half of the whole number of States are protected by very efficient legislation. In casting about for new laws for the regulation of medical practice we desire to suggest the propriety of exercising discretion in the selection of the legislation for submission to the different legislative bodies. It is quite universally conceded that the principles governing ideal legislation are three in number. They are as follows: *First*. All parties wishing to commence the practice of medicine in the various commonwealths should invariably be required to undergo an examination upon all the fundamental branches of medicine. *Second*. Boards should be granted the privilege of refusing and revoking licenses for gross unprofessional or dishonorable conduct. *Third*. There should be defined a minimum of the time to be spent in professional study, including time actually spent at lectures, to entitle the applicant to the privilege of entering upon the examination. Of course, it is understood that the board is to be composed of medical men and granted the same powers that other quite similar State boards possess. In regard to the first principle above mentioned, the rule of individual examination of applicants is the universal practice in every civilized country known to the writer. Individual examination is required in England, Ireland and Scotland, in Germany, France and all the countries of Continental Europe, likewise in Canada and Australia. There are fifteen States of this country that have statutes requiring an individual examination of all applicants. A few State laws permit the recognition of diplomas from

colleges in good standing, as entitling the parties to a license to practice. It is an embarrassment to a board to be granted this privilege. The first act regulating practice in Minnesota gave the board this privilege. It was repealed six years ago and a new statute adopted requiring all parties to undergo an examination. The present act in Minnesota is probably the most efficient act regulating medical practice, of any State in the U.S. Ten years' efficient legislation in Minnesota has reduced the proportion of physicians to the population as follows: In 1882 there was one physician to every seven hundred people, while in 1892 there was one to every thirteen hundred. St. Paul has the lowest proportion of physicians to the population of any of the larger cities of this country. In regard to the second principle, the instances demanding its enforcement will be in cases of gross unprofessional or dishonorable conduct, such as occurs in flagrant quackery, persistent inebriety and criminal abortion. A bill is now pending before the Pennsylvania legislature not granting to the board this power. In other respects the proposed bill is quite ideal, however. Under the third principle, the statute should provide a minimum of time to be spent at lectures and in study, before permitting a party to undergo an examination for a license to practice. The necessity of this proviso is quite obvious. Minnesota was the first State to enact this proviso. Its effect has been most salutary. Excuse for its existence will cease with the adoption of the four years' requirement by the colleges of this country. That this time is near at hand there can be little doubt. Commencing with this year's session every college in the United States will require three full courses of lectures before graduation. Now that teachers witness the increased popularity of the high grade schools together with the increased attendance, there will be less lagging in the future. There will be just as many students under the four year course with an income just twice that of former years. There will be a smaller number of schools with a larger corps of instructors.

The new system of instruction demands greater laboratory facilities with increased expenditure for equipment and an increased number of instructors. Its benefits will be phenomenal. We will have with the four year curricula a better class of men entering the profession and men graduating that are very much better equipped for their life work. The result will be a better public service at the hands of the profession. The number of students will probably not lessen with the adoption of the four year course but will probably not increase with the same proportion as in the past. If every college in the country were to adopt the four year course at once, the demand would still remain for the existence of the State regulation of medical practice. The demand for its

existence would be the same as that of the various countries of Europe. It would be a means of stimulating the different colleges to better work, as these boards work are the best channels through which we witness the true character of instruction being afforded the student of medicine by the various colleges of the country. In a question so important to the people and profession, it becomes the duty of the friends of medical legislation to bury prejudices and look at this question in its broadest light. Regarding the *personnel* of the board you should only require that the board be composed of men of experience and good repute in their respective communities.

The question of school of practice cuts little figure. Experience has proven that these representatives of the various schools of practice meet and perform the duty imposed in their trusts without any manifestation of jealousy or friction.

This has been the experience in Illinois, Minnesota, New York, Missouri, Iowa and many other States and will be the experience of States in the future that are vested with the execution of medical legislation.

ENDOWMENTS FOR MEDICAL SCHOOLS.

The subject of medical educational methods is always of interest to physicians, and particularly is such the case at this time, because of the absolute evolution that is taking place, as manifested in the demand made by State Boards of Health, State Boards of Examiners, and the great National Societies, requiring more thorough study on the part of students, and longer courses of instruction given by the colleges.

This condition is brought about by the progress made in our art and science during the past decade.

That the change is not acceptable to a large number of students and to some of the colleges is not surprising, for there are and always will be, an unfortunately large number of aspirants for medical honors, who desire to slip along and through their student life with a minimum of study and of expense.

This is greatly regretted by all right thinking men, for it indicates a lack of appreciation of the work necessarily entered upon by those who propose for themselves a physician's career.

On the part of the colleges which propose to cater to students seeking short terms of instruction, the apology is made that however much they desire to keep step, forward and upward in the march, they cannot financially afford to meet the advance requirements.

Such institutions are in an unenviable dilemma, for they cannot stand still or paddle along in the old beaten paths. They are destined to either fall back into an innocuous dissuetude, or are obliged by the

new conditions to gird themselves anew for the exigencies that are before them.

The new conditions imply a provision of the necessary means for creating modern laboratories with accompanying apparatus and accessories of all kinds. Such needed adjuncts, including a trained corps of teachers are to be obtained only through munificent endowments provided and bestowed by those who are bountifully blessed with this world's goods, or by State aid.

Such resources as those named afford the only practical solution of the much discussed medical educational problem.

* * * * *

Endowments or State aid, should only be given to medical schools having a practical relation with a university or academic college, as one of the post graduate departments of such institutions. A nominal affiliation is not a sufficient condition. The one must be an integral part of the other. Such a relation naturally fosters and encourages a suitable preliminary course of study for those who propose entering the medical department, the curriculum of which should be *de facto*, one of the post graduate courses.

Teachers of the Science of Medicine in university medical departments should be paid regular salaries, the same as teachers in other departments, and open prizes offered for results of original research.

Teachers of the Art of Medicine need not necessarily be salaried men, as other emoluments naturally flow in to the occupants of such chairs.

Large endowments have recently been made to the medical department of the University of Pennsylvania, the medical department of the University of California, the medical department of the Columbia University, the medical department of Johns Hopkins University, the medical department of the Western Reserve University, at Cleveland, to the medical department of the Chicago University, the medical department of the Northwestern University, the medical department of Dartmouth, and perhaps others; material, if not munificent State aid, is annually given by the legislature of Michigan to the medical department of the State University; the same may be said of the legislature of Minnesota and perhaps of other States.

Such are the measures necessary for the promotion of the higher grades of medical instruction, and without such substantial foundations, medical colleges, the managers of which are conscious of their shortcomings, must make a change of front, squarely meet the issue that is before them, and show by their works, an honest acceptance of the educational situation.

To the best of our knowledge neither State aid, or financial endowments have ever in any instance been bestowed upon Commercial Medical Colleges, nor is it

likely that we shall be called upon to make mention of such an institution. Moneyed men are usually too shrewd to give of their wealth for such individual aggrandizements.

TENDON ANASTOMOSIS IN INFANTILE PARALYSIS.

In May, 1892, DR. PARRISH, of New York, performed this novel operation. The tendon of the paralyzed extensor pollicis was joined to the tendon of the healthy anterior tibial muscle. Soon after this the child experienced another acute attack of infantile paralysis affecting the posterior tibial muscle. A second operation was done in November, joining the tendon of the posterior tibial to the gastrocnemius. The junction was made with catgut sutures, and the wounds closed without drainage.

DR. A. M. PHELPS, working independently and without knowledge of DR. PARRISH's experiment, in September, operated in a like manner, joining the tendon of the paralyzed gastrocnemius and soleus to the tendon of the healthy long flexor of the toes.

In both instances a marked gain has been noted. It is possible, then, to join the tendon of a paralyzed muscle to that of a neighboring healthy muscle, closing the wound without drainage, and obtain firm union, an improved position and more or less voluntary control over the movements of the part. So much gain immediately after the operation implies a greater gain as time goes on, in a more equal muscular balance, a diminished tendency to increasing deformity, and a lessened time during which retentive appliances must be used.

THOSE wishing to read papers at Milwaukee in the Section of Obstetrics and Diseases of Women will please send me their application with title of paper at once. Those who are going to read should know it early, and thus have abundance of time to prepare carefully.

JOHN MILTON DUFF.

DOMESTIC CORRESPONDENCE.

Revision of the Code of Ethics.

Dear Sir:—"INQUIRER," in his letter to THE JOURNAL of January 21, 1893, does not object to the matter of the Code but "to the form and method employed in giving expression to the precepts which it inculcates." The erudite and scholarly Percival composed his Code of morals at a time when precision in language and in methodical arrangement were as much valued as it is at the present date. The literary taste of the eminent members of the National Association who adapted Percival's maxims to the use of Americans will scarcely be questioned, even by "INQUIRER" whose standard of style and arrangement is apparently so high, when the code is critically examined in respect of the minutest particulars of arrangement and of literary treatment. The writer will not attempt to convince "INQUIRER" who can better satisfy his own doubts by examining the whole subject at leisure. The writer has, however, this request to

make in the most respectful tone and with the best motives; to-wit: that "INQUIRER," when he shall have reexamined the manner of the code, will frankly state his convictions whatever they may be. It is gratifying that he so fully endorses the matter of the code and the writer's views, on that part of the subject, expressed in the letter to THE JOURNAL of January 14, 1893. By continuing the analysis of the *News* editorial, the writer will endeavor to adduce sufficient reasons why the Code should not be curtailed on the lines of this editorial in any particular whatsoever.

1. The *News* editorial proposes that the greater part, if not the whole, of the first chapter of the code be suppressed; the reasons alleged being that, like other parts, it is unnecessary, and that there is much in it, "which well deserves the criticism it has received." By this, the author of the editorial probably means to say that the code deserves, and has received reprobative censure. May not the censors have been hasty and unduly severe in their judgment?—Every close student of literature and science knows how difficult it is to form a correct judgment of the merits of some productions even after repeated exhaustive examinations, and that fair, unbiassed, just criticism is not easy to any reviewer, besides being one of the most unenviable tasks. The "well deserved criticism" is a seeming contraction of the author's statement that "the general sense of the profession" is favorable to the Code as it stands. If the general sense of the profession is for retention of the code, surely the censors are in the minority, especially if "Iowa" be correct when he says: "It is safe to affirm that nine-tenths of the profession heartily agree with the views stated by 'CONSERVATIVE' in his letter of Dec. 10, 1892." Furthermore, "Iowa" suggests that "every annual meeting in the history of the Association has offered an opportunity to cancel or revise the Code . . . and that it has retained that freedom from disapproval due to its excellence and origin." The assertion that the Code "contains much that is unnecessary and useless, and that a respectable number of members of the profession demands its revision and are dissatisfied with certain of its provisions," was originally made, even in more peremptory language than this, by a small minority of physicians who rendered themselves ineligible as delegates to the national association. It is seemingly under their inspiration that the proposition was made to revise the Code. Doubtless the association, through the Judicial Council, will give a fair hearing to the complaints of the disaffected, but will probably exercise the right of asking them to state clearly the nature of their grievances, to tell precisely why they are dissatisfied with any of the provisions of the Code, to furnish a logical argument why they consider that certain provisions of the Code should be curtailed or abrogated, to say if they can show that the Code is injurious to the profession and to the public, and, moreover, will probably subject them to the most searching cross-examination. They will be on trial who have disfranchised themselves by refusing to abide by the laws of the Association, and who now wish to dictate terms on which to reenter its portals.

2. The *News* editorial condemns article III, chapter II, of the Code, relating the duties of physicians as respects vicarious offices, on the ground that it refers to a question ordinarily regulated by custom. Most moral laws being based upon good customary practices, the substantive plural morals being derived from *moris*, customs, and ethics from *ethos* custom, it would not be illogical to regard, as essentially ethical, a question regulated by custom. But newly fledged physicians are not supposed to have intuitive knowledge of the customs which regulate professional conduct. They must be supplied with proper information, with a criterion, with a written code of customs. If any reader

should have doubts of the propriety of retaining this, or indeed of any other article of the Code, all these doubts will be speedily removed if he take the trouble to read Doctor Flint's commentaries on the Code.

3. The author of the *News* editorial says that the "Code should clearly and distinctly define the attitude of the profession and provide certain rules for professional conduct." The Code does all this to perfection, and yet he seems disposed to despoil it of much of what he indicates that it should embrace.

4. This same author further says that the eliminations he proposes "would leave the Code with all of its useful provisions and reduce its length more than one-half." He then "throws out as tentative suggestions what seem . . . the most important points." Since he invites free discussion thereon, it may be proper to comply with his wish as well as to strive to answer specifically the question of "INQUIRER" and of others who, from a casual reading, may regard "the tentative suggestions" as representing a highly compressed abstract of the Code. If, however, they re-examine each section of these suggestions and compare it with corresponding provisions of the American code, it is very likely that they will change their views and perhaps think that the Code is short enough and does not contain "unnecessary and useless provisions." The following is the result of a re-examination of the *News*' suggestions.

5. These "tentative suggestions" are divided into seventeen sections, two of which comprising several paragraphs. The first paragraph of Section I provides that "every member of the profession knows what constitutes 'a regular or an irregular practitioner, but this should be clearly defined.'" How can he consistently take this position after asserting that the Code should not include maxims that "go without saying?" According to his own view, if every physician "knows what constitutes a regular or an irregular practitioner" there is no need of stating what every physician knows or what "goes without saying," and his first paragraph should be expunged as unnecessary. A definition of what every physician knows being, according to the editorial, unnecessary and useless, it follows that the second and third paragraphs, which define "a regular and irregular practitioner," are unnecessary and that therefore the whole section is useless.

6. The second section, which is in general accord with the spirit of the Code, is, in letter, entirely too elastic. The explanatory declarations appended to the American code besides being more explicit than this second section, are extremely liberal, both in letter and in spirit, and will surely satisfy all reasonable persons.

7. As physicians instinctively know their duty in cases of emergency, it is an inconsistency on the part of the author of the suggestions to make provision in his third section for such circumstances, if he adheres to his notion of things that "go without saying." Moreover, in the explanatory declarations, which now constitute a part of the Code, there is a wise provision for emergencies in fewer words than are printed in the third section of the "tentative suggestions."

8. Sections 4 to 11 inclusive are certainly no improvements on those of the American code relating to consultations, which contain every necessary detail in letter, and much in spirit. It is, however, gratifying that the author of the editorial has retained the substance of the clauses in the regulations, relating to consultations, which are so much decried by some of those who are "dissatisfied with certain of the provisions" of the Code.

9. Section 12 does not seem to possess any advantage over Section 9 of Article V, Chapter II, of the American code, which contains more necessary matter with only twenty-four words in excess of Section 12 of the "tentative suggestions."

10. Section 13 is very unsatisfactory and insufficient when compared with Section I of Article V, Chapter II, of the Code, which contains only nine words more than Section 13, of the suggestions. Section 2 of this sixth article of the Code necessary to the completion of the statement of the law in cases of differences between physicians.

11. Section 14, concerning confidential relations with patients, is not explicit. The provisions embodied in Section 2, of Article I, Chapter I, of the Code, without being unnecessarily long, give clearer, fuller, and better directions than those of the fourteenth section of the suggestions.

12. Nearly all of the eight paragraphs of Section 15 of the "tentative suggestions" are either embodied in the Code or may be regarded as pertaining to its spirit. In respect to newspaper interviews, there is no excuse for the appearance of the name of the interviewed physician. He may give the desired facts to the newspaper correspondent, but on condition that, instead of attaching his name to the document, it be stated: "This information was obtained from a reputable physician." The public is likely to be satisfied when such a declaration appears in a responsible newspaper.

13. Physicians, holding public positions, who regard the spirit of the Code, will not be apt to abuse the privilege accorded by the sixteenth section of the suggestions and, unless their ordinary signature is indispensable in an official document, would be more likely to sign: "The physician in charge, the chief medical officer, or the medical commissioner," just as in the case of the seventeenth section it would be in better taste to sign a bulletin in case of "illness of a public personage:" "By order of the attending physician." These provisions are unnecessary in the letter of an ethical code. The spirit of the Code is likely to be rightly interpreted by high minded physicians, whose arts are not indicative of bad taste or a desire for notoriety.

14. The concluding paragraph of the editorial, referring particularly to the "tentative suggestions," is as follows: "These rules are simple, distinct, and easily understood. If some such code as suggested were adopted by the American Medical Association and recommended for adoption by the different State Societies, it is probable that it would meet the views even of the Medical Society of the State of New York. Should this happy result follow the labors of the committee on revision of the Code of Ethics, it would be difficult to find a logical basis for dissensions on questions of medical ethics." Already it has been shown that these simple, distinct and easily understood rules are not all explicit, and are incomplete, and insufficient for the information of young physicians. It seems to be hoped by the author of the suggestions that the National Code will be abrogated and a new system of ethics recommended for adoption by every State Medical Association, to satisfy the unjust demand of an unreasonable minority, from one State, to the entire disregard of the wishes of all the other States in the Union. The author of the editorial, it seems, would regard this scheme in the light of a happy result, if it should be accomplished! . . . History has often shown how the most liberal concessions on the part of legislative bodies have failed to satisfy agitators, and history is constantly repeating itself. The explanatory declarations, liberal as they are, do not satisfy the dissenters who do not appear to wish to be conciliated. The National Association, which is not, and cannot be on trial, and is not subject to humiliation, has only to maintain firmly and resolutely its dignified attitude, and pay no other attention to dissenters than to vote them down. The right-minded, able, eminent and reputable members of the profession will surely stand by and continue to perform an abundance of useful work in peace and harmony, and thus preserve to the Association the highest standard of morals and of scientific acquirement.

15. By this examination of the "tentative suggestions," the writer is led to the conclusion that their author has offered, for the American Code, a substitute which cannot, in any respect, be considered as an improvement.

16. It appears that the alleged object of revising the Code is "that it may be liberalized." But not one of the liberalizers has offered substantial proofs that the Code is illiberal in a single particular, or that its teachings are injurious. What then is there to liberalize in moral laws which advocate unbounded freedom to do good, and frown upon evil practices? It is hoped that the Code, so broad, so liberal as it is, will not be converted into a document for granting license to do wrong, and that the vast majorities of physicians, in and out of this great National Association, who love liberty and discountenance license, will unite in their might and put down the existing heresy.

17. It is strange that the author of the *Medical News* editorial should have so misapprehended the situation when at p. 331 of the *News* of September 17, 1892, he said, . . . "but the fact that many of those who, through the State Society, have repudiated the Code, are permanent members . . . puts the Association in a false and illogical position if their membership be recognized, or excludes certain able consistent, and honest co-workers if the laws of the Association be rigidly enforced." Assuredly he has been misinformed, and this only is accountable for the assertions just quoted. Any person, not entitled to membership, who may arrogantly demand admission on his own terms, will naturally be denied its privileges, but the Association has never and probably will never exclude able, eminent, and honest workers, or honest workers of average ability, or physicians of good repute, who subscribe, in good faith, to the Constitution and Code of Ethics. It is well known that no physician can become a permanent member until he has subscribed to the Constitution and Ethics, and that in signing the registration blank, at the time of a meeting of the Association, the signer thereby subscribes to the ethical code. But if he signs his blank, or any other document relating to membership, with "mental reservation," it is at the sacrifice of self-respect; he must be conscious that he is thus perpetrating a fraud which renders him unworthy of membership. If he subscribes to the American Code and belongs to another society that repudiates this Code for an antagonistic code to which he subscribes, then he is disloyal to both organizations. Those who refuse to abide by the Code while they retain their membership, place themselves, but not the Association, in a "false and illogical position." Those who are not willing to comply with the laws of the Association are not obliged to join, and others, already admitted, who have become dissatisfied with those laws are not forced to continue their membership. The Association has an ample contingent of "able, eminent, and honest workers," and is large and powerful enough to withstand the exodus of all malcontents, turbulent spirits, and disorganizers.

18. The author of the *News* editorial is evidently sincere in what he asserts, but surely he has been wrongly informed, and if he takes sufficient pains to gather more evidence he may perhaps arrive at different conclusions.

19. The facts pertaining to the real situation may be summarized as follows: A minority of physicians, principally of one State, make a peremptory demand that the majority, representing all the other States, shall yield to their mandate; in other words, one State arrogates the right to legislate for all the other States in the Union. That State, which repudiates laws enacted by the consent of each and every one of the other States, insists upon their unconditional surrender. The question is whether they will accede to this imperious command.

A CONSERVATIVE MEMBER.

ASSOCIATION NEWS.

THE MILWAUKEE MEETING, JUNE 6-9.

The Committee of Arrangements are well organized and give assurance of a thoroughly aroused and interested local profession, and that steps are being taken to make the ensuing meeting a complete success.

The following are the Committees:

EXECUTIVE.

U. O. B. Wingate, M.D., Chairman.	Wm. Mackie, M.D.
W. H. Washburn, M.D., Sec.	F. E. Walbridge, M.D.
L. H. Montgomery, M.D., (Asst. Sec. A. M. A.).	Jos. Schneider, M.D.
Wm. Fox, M.D.	E. Copeland, M.D.
Solon Marks, M.D.	Jas. Cavaney, M.D.
Jas. Dorland, M.D.	H. V. Wurdemann, M.D.
Samuel W. French, M.D.	G. D. Ladd, M.D.
A. J. Puls, M.D.	A. B. Farnham, M.D.
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COMMITTEE ON PLACE OF MEETINGS OF SECTIONS.

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	C. C. Rogers, M.D.
The Chairman to appoint four other members.	

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Wm. Mackie, M.D., Chair- man.	Fred Shimonek, M.D.
G. D. Ladd, M.D.	J. W. Coon, M.D.
T. H. Hay, M.D.	J. L. Williamson, M.D.
A. B. Grider, M.D.	E. W. Bartlett, M.D.
	Ralph Chandler, M.D.

COMMITTEE ON RECEPTION.

Solon Marks, M.D., Chairman, with all the members of the Association residing in the city at the time of the meeting, not appointed on other committees, and such members of the Association residing outside of the city, in the State, not exceeding twelve in number, as the Chairman may select.

COMMITTEE OF LADIES' RECEPTION AND ENTERTAINMENT.

Mrs. Solon Marks, Chairman, with such assistants as she may select.

MISCELLANY.

MEDICAL SOCIETY OF THE MISSOURI VALLEY.—The next meeting of this society will be held in the city of St. Joseph, Mo., March 16, (Thursday) and continue in session one day. Members contributing papers must send titles to the secretary prior to February 25, so they can appear on printed program, mailed March 1. Applications for membership, can be sent to Dr. J. M. Richmond, St. Joseph, Mo. chairman committee of arrangements.

F. S. THOMAS, Secretary.

THE NINTH ANNUAL MEETING OF THE FIFTH DISTRICT BRANCH OF THE N. Y. STATE MEDICAL ASSOCIATION will be held in Brooklyn on Tuesday May 23, 1893. All Fellows desiring to read papers will please notify the secretary, E. H. Squibb, M.D., P. O. Box 170, Brooklyn.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.—The Eighty-seventh annual meeting of the Medical Society of the State of New York will be held in the City Hall, at Albany, Tuesday, Wednesday and Thursday, February 7, 8, and 9, commencing at 9:15 A.M., on Tuesday and ending at 1 P.M., on Thursday.

The Relation, in the Male and Female, of Genital Disease to Mental and Nervous Affections, by Landon Carter Gray, M.D., New York.

Topic—Epilepsy.

1. The Epileptic Interval; Its Phenomena and their Importance as a Guide to Treatment. William Browning, M.D., Brooklyn.
2. Reflex Disturbances in the Causation of Epilepsy. William C. Krauss, M.D., Buffalo.
3. Mental Epilepsy. J. Montgomery Mosher, M.D., St. Lawrence State Hospital for the Insane, Ogdensburg.
4. The Development of Epilepsy after Traumatic Injury to the Skull. B. Sachs, M.D., New York.

The Treatment of Uramic Convulsions. R. C. M. Page, M.D., New York.

The Registration of Midwives. J. L. Kortright, M.D., Brooklyn.

Topic—The Relative Value of Certain Obstetrical Operations.

1. General Review of the Operations to be Discussed, by Egbert H. Grandin, M.D., of New York.
2. The Limitations of Embryotomy, by N. Clifton Edgar, M.D., of New York.
3. The Limitations of the Cesarean Section, by Robert A. Murray, M.D., of New York.
4. The Anatomical Limitations of Symphysiotomy, by J. E. Kelly, M.D., New York.
5. The Clinical Limitations of Symphysiotomy, by Chas. Jewett, M.D., Brooklyn.

General Discussion, to be participated in by Drs. E. P. Davis, Philadelphia; H. A. Kelly, Baltimore; H. C. Coe, New York; Reynolds, Boston.

Practical Antisepsis and Asepsis, with stereopticon demonstrations (by invitation), by Howard A. Kelly, Baltimore.

Epitaphs from the Tombstones of Medical History, with stereopticon projections of many old and rare medical portraits, by Joseph H. Hunt M.D., Brooklyn.

Topic—The Management of Suppuration Complicating Tuberculous Disease of the Bones and Joints.

Papers by Drs. V. P. Gibney, of New York; Roswell Park, of Buffalo; Henry Ling Taylor, of New York; and Louis A. Weigel, of Rochester.

Topic—The Present State of Knowledge as to Carcinoma.

1. The Pathology of Carcinoma. H. C. Coe, M.D., New York.
2. The Etiology of Carcinoma. Roswell Park, M.D., Buffalo.
3. The Value of Internal Medication in the Treatment of Carcinoma. Jarvis S. Wight, M. D. Brooklyn.
4. The Results obtainable from the use of Anilin Products in Carcinoma. Willy Meyer, M.D., New York.
5. Caustics in the Treatment of Carcinoma. Daniel Lewis, M.D., New York.
6. The Knife in the Treatment of Carcinoma. N. Jacobson, M.D., Syracuse.

Discussion to be opened by Dr. George R. Fowler, of Brooklyn.

Tubercular Epididymitis, by Herman Mynter, M.D., Buffalo.

Topic—Newer Methods of Diagnosis and Treatment of Stomach and Intestinal Diseases.

1. The Practical Value of the Newer Methods of Examination in the Diseases of the Stomach, with a Consideration of the Indications given for Diet and Treatment by such Examinations, by Henry L. Elsner, M.D., Syracuse.
2. The Methods of Obtaining and Examining the Stomach Contents in Disease for the purposes of Diagnosis, by J. Fuhs, M.D., Brooklyn.
3. The Disturbances of the Motor Function of the Stomach; their Diagnosis, Symptoms and Treatment, by C. G. Stockton, M.D., Buffalo.
4. The Physiological Effects of Electricity in the Stomach, the Indications for its Administration and Use in Gastric Disease, and the Methods of using the same, by Max Einhorn, M.D., New York.

Anniversary address by the President in the Senate chamber.

Topic—The evolution of the American Surgeon.

Report of a Case of Severe Abdominal Injury terminating in Recovery. J. S. Cooley, M.D., Glen Cove.

The Treatment of Inguinal Hernia. Alex. Dallas, M.D., New York.

Certain Types of Septicæmia Resulting from Abortion. Andrew F. Currier, M.D., New York.

Puerperal Sepsis, its Prevention and Cure. Wm. W. Potter, M.D., Buffalo.

Hoarseness. W. Franklin Chappell, M.D., New York.

The Diagnosis and Nomenclature of Fevers. Nelson G. Richmond, M.D., Fredonia.

Congenital Opacities of the Lens. Wm. F. Mittendorf, M.D., New York.

Is Stoerk's Blenorhoe and Laryngitis Sicca One and the Same Disease? W. Freudenthal, M.D., New York.

The Committee on Credentials will meet at the Delavan House Monday evening, when members and delegates can register.

The committee consists of Dr. Walter B. Chase, of Brooklyn; Dr. Charles M. Culver, of Albany; and Dr. J. P. Crevelling, of Auburn.

Communications regarding papers should be addressed to the Business Committee: Dr. Seneca D. Powell, 12 W. 40th St. New York; Dr. William Maddren, 1 Hanson Pl., Brooklyn; Dr. John O. Roe, 28 W. Chester St., Rochester.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from January 13, 1893, to January 19, 1893.

First Lieut. Thomas A. Raymond, Asst. Surgeon, is relieved from further duty at Vancouver Bks., Washington, and will report in person to the commanding officer, Ft. Canby, Wash., for duty at that station, relieving Capt. Edward C. Carter, Asst. Surgeon, who, on being thus relieved, will proceed to Vancouver Bks., and report in person to the commanding officer of that post for duty there.

Capt. Guy L. Edie, Asst. Surgeon U. S. A., is relieved from duty at Ft. Niobrara, Neb., and will repair to New York City, and report in person to the attending surgeon in that city, for duty in his office.

Capt. Jefferson D. Poindexter, Asst. Surgeon U. S. A., is granted leave of absence for four months.

First Lieut. Samuel R. Dunlop, Asst. Surgeon U. S. A., leave of absence granted is still further extended to include January 31, 1893.

First Lieut. Samuel R. Dunlop, Asst. Surgeon U. S. A., resignation has been accepted by the President, to take effect January 31, 1893.

OFFICIAL LIST OF CHANGES in the Medical Corps of the U. S. Navy, for the Week Ending January 21, 1893.

P. A. Surgeon F. A. Hassler, ordered to receiving ship "Vermont."

Asst. Surgeon George Rothganger, to the Navy Yard, Mare Island, Cal.

Surgeon P. M. Rixey, ordered to the U. S. S. "Dolphin," February 6, 1893.

P. A. Surgeon J. D. Gatewood, detached from the U. S. S. "Dolphin," and granted two months' leave from February 6, 1893.

P. A. Surgeon H. N. T. Harris, to special duty in the Bureau of Medicine and Surgery.



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No. 5.

ORIGINAL ARTICLES.

A PECULIAR NUCLEAR SAFRANIN REACTION AND ITS RELATION TO THE CARCINOMA COCCIDIA QUESTION.

An inaugural thesis read before the Pathological Section of the Chicago Academy of Sciences, January 12, 1893.

BY A. P. OHLMACHER, M.D.,

PROFESSOR OF EMBRYOLOGY AND BIOLOGY, COLLEGE OF PHYSICIANS AND SURGEONS, CHICAGO

The employment of a large number of chemical reagents is one of the unfortunate features of modern microtomy. No one can become familiar with the long list of substances employed in microscopical research, nor with the bewildering combinations of fixing agents and staining agents, without realizing the possibility of many of these substances being used without a definite knowledge of their effects. The history of microscopic anatomy is full of instances, in which the results of some pioneer investigator have been attacked, on the ground that the results which he obtained were the effects of the reagents employed in the study. In fact, it is even now not uncommon to have the question of the reagent effect brought up, when intricate microscopical studies are being prosecuted. Without doubt, the suspicion that many of the marvellous findings of the cytologists are the products of unknown micro-chemical changes, is still entertained by many individuals.

The controversy between Henle,¹ Flemming,² and others, concerning the nuclear fragmentation observed in leucocytes and pus corpuscles, is a notable instance of the skepticism relating to the interpretation of microscopical findings. Henle maintained that the multi-nuclear condition of leucocytes and pus corpuscles was the result of the acetic acid, or other reagent, used in studying these bodies. This view was strongly opposed by Flemming, who observed multi-nuclear leucocytes in various situations in living objects, and who further noted that no change was produced in these cells by killing them with acetic acid, save that the nuclear structure became more apparent.

Every histologist will remember the discussion which arose when the discovery of the reticulated condition of the protoplasm of the cell and nucleus was announced; a considerable number of investigators arraying themselves on the side which maintained that the reticulum was either a faulty optical interpretation, or was the product of the changes induced by the chemical substances employed in the technique. But Flemming and his followers apparently put the subject at rest, by not only demonstrating the nuclear and cytoplasmic reticulum, but

also by following the processes of direct and indirect nuclear division in *living tissue*; these observations being made by the aid of the most perfect optical appliances.

While the employment of reagents is a prime necessity of microscopical technique, it is nevertheless a fact, that such reagents produce a variety of compounds with each other and with the substances of the tissue, the exact natures of which are either unknown, or but imperfectly understood. It follows then, that until our knowledge of ultimate micro-chemical cellular and nuclear reactions be complete, we must regard with a reasonable skepticism, many of the startling microtomical novelties of the day.

The open questions in this connection are many. What is the exact nature of that part of the so-called chromatin of the nucleus, which retains certain anilin stains when employed by the "indirect method?"³ What is the effect of the fixing medium on this chromatin? What is produced by the combination of the nuclear chromatin and fixing agent, which allows a certain dye to stain precisely, and another one to fail? Many queries of this character confront the microtomist at every turn, and impress him with the profound character of the many unsolved biological problems. It cannot be said, however, that the absorbing subject of the micro-chemistry of staining agents, particularly the anilins, has been entirely neglected; for the work of Ehrlich⁴ and his students on the reactions of leucocytes, and "mastzellen," indicate the tendency to investigation in this direction.

In this connection also, may be mentioned the work of Auerbach,⁵ Watasé,⁶ and others, on the two chromatin substances which are distinguished by their micro-chemical and staining reactions. These authorities go so far as to indicate the *sexuality* of the two nuclear substances; the erythrophile, being the preëminently male constituent, and the cyanophile, essentially female. Manifestly, such work opens a wide field for research, the bearings of which must be felt in every department of biological or pathological investigation.

* * * * *

Among the many staining substances employed in the new microtomy as inaugurated by Böttcher and Hermann and improved by Flemming, one, safranin, has come into very extensive use. When employed after the "indirect" or Flemming method, safranin gives a precise chromatin stain, which compares in color and durability with carmine. The solutions of safranin in common use are two, viz., the alcoholic

³ A. B. Lee. The Microtomist's Vade Mecum. Second edition, London, 1890, p. 55.

⁴ Farbenanalytische Untersuchung zur Histologie und Klinik des Blutes. Gessam. m. Mitthell., v. P. Ehrlich, I, 1891.

⁵ Ueber einen sexuellen Gegensatz in der chromophille der Keimsubstanzen nelderer Wirbeltheiere. Von Prof. Dr. L. Auerbach. Aus Sitzungsberichte der königl. preussischen Wissenschaften zu Berlin.

⁶ On The Phenomena of Sex-differentiation. S. Watasé, Jour. Morphology, VI, No. 3, 1892.

¹ Henle. Zur Entwicklung der Krystallinse und zur Theilung des Zellkerns. Arch. f. Mik. Anat., Band 20, p. 113, 1881.

² Flemming. Zellsubstanz, Kern und Zelltheilung, Leipzig, 1882, p. 318.

(Pfitzner's and Flemming's), and the anilin-water (Babs, Zwaardemaker). It is very necessary that the safranin employed be of the right quality and in this respect the products of Grübler meet all requirements: his "safranin spirituslöslich" being adapted for the alcoholic solutions, and the "safranin wasserlöslich" for the anilin water solutions. These staining solutions can only be employed with sections of tissue; and it is further true, that safranin only gives its best result in sections of tissues which have been fixed in a chromic acid mixture. The practice of safranin staining consists in allowing the section to attain an over-stained condition in the coloring solution, and then washing out and fixing the stain, then clearing the dehydrated section, and mounting it in balsam. A variety of agents have been employed in the washing and fixing of the safranin, as acidulated alcohol (Flemming⁷), strong picric acid alcohol (Podwyssozki⁸), iodine after Gram's method (Prenant⁹), and chromic alcohol (Martinotti and Rescotti¹⁰).

The action of the hydrochloric acidulated alcohol, or plain alcohol, when employed in washing out, seems to be merely a solvent one. The excess of stain dissolves in the spirit, and the remainder is held by the nuclei, which apparently have the greatest affinity for the color. With chromic acid, or iodine, however, the effect seems different, as suggested by Lee,¹¹ who considers it probable, that these agents have a sort of "mordant" action on the nuclear chromatin, inducing in it a marked affinity for the staining material. In this connection it is important to direct attention to the fact, that chromic acid, picric acid and iodine, all possess the property of precipitating safranin from its solutions. The experiment may be tried by adding a drop of the washing and fixing mixture (chromic acid solution, picric alcohol or iodine solution) to a drop of the safranin solution on a glass slide: here the precipitation may be carefully observed by the aid of the microscope. In the case of the chromic acid solution, an amorphous yellowish precipitate is instantly produced when a drop is brought into contact with the safranin mixture. With an alcoholic iodine solution, *a mass of deep red, needle-shaped crystals is produced immediately*. When picric acid alcohol, and anilin water safranin solution are mixed, the precipitation is much more tardy; but sooner or later, a crystalline deposit may be observed *which resembles very closely that produced by iodine and safranin*. All of these deposits are soluble in alcohol.

* * * * *

In a modified method recently proposed, Heidenhain¹² advises the employment of tincture of iodine in treating the sections of tissue fixed in corrosive sublimate, previous to staining, with the object of removing the crystals of sublimate which often remain in the tissue. This process consists in treating sections of paraffine imbedded tissue, which have been fixed on the slide, and previously treated by xylol and alcohol, with strong tincture of iodine. After the iodine has acted ten or fifteen minutes, the section is washed in changed alcohol, and is then ready for any kind of staining.

While engaged in the preparation of some frog's tissue after Heidenhain's method, which was to be stained in safranin, I made the mistake of placing the section in the staining solution (Pfitzner's alcoholic safranin mixture) before it had been treated with the tincture of iodine. It occurred to me to try the tincture of iodine *after* the safranin, in the hope of still being able to remove the sublimate crystals.

The first section on which the procedure was tried was from the heart of the frog, which had been stained for twelve hours in the safranin. The iodine tincture was applied to the section immediately on its removal from the staining solution, and was allowed to act for two or three minutes. A brief washing with 95 per cent. alcohol followed, by means of which the excess of stain was removed and the section dehydrated. The object was cleared with clove oil, and mounted in xylol balsam.

On examining this section of the frog's heart, microscopically, I was struck by the remarkable appearance presented by the tissue. Under the low power (Leitz objective 3), the appearance of the section at first sight resembled that of precise safranin staining when carried on after usual methods; *i.e.*, the nuclei were prominent by their deep stain, while the ground substance appeared nearly unstained. More careful observation even by the low power, demonstrated a peculiar granular appearance in the nuclei, as something entirely unusual. On employing a higher power (Leitz objective 8), the nature of the granular appearance of the nuclei became more apparent. The nuclei of the heart muscle were exceedingly prominent, because of the presence in their interior, of irregularly arranged, deep red stained masses, quite distinct from the usual chromatin framework of such nuclei. At first superficial examination it seemed as if all the nuclei of the heart muscle were undergoing the process of karyokinesis, particularly, as some of the red stained masses assumed attitudes not unlike certain chromatic figures of indirect nuclear division. This idea was dismissed, however, on closer observation; for aside from the many usual shapes presented by these intra-nuclear bodies, it was noticed that the usual stages of karyokinesis were not reproduced, and that the nuclear membrane was always intact. The idea of the bodies being bacteria presented itself, but was at once abandoned, because of their irregularity in size and shape, and because of their constant presence within the nucleus.

A more prolonged study, and particularly with the aid of the twelfth inch oil immersion lens, brought out the characteristic features of these safraninophile masses. Their prominence was due to the intensity of their deep red color which allowed them to stand in relief, even when strong substage illumination was employed, as is the case with well stained bacteria in tissue, and with nuclear figures. The shape of these bodies exhibited all variations from the nearly spherical, to the rod-like; and the bodies were sometimes single and again thrown together in masses. The rod or stick-like forms predominated, and these varied greatly in their dimensions; and some exhibited blunt round ends, while others were pointed, or "lance-like." Undoubtedly, the variety of shapes was in part due to the relation of the bodies to the plane of the optical section. A little ingenuity in comparison would have made it easily possible to describe

⁷ Zeit. für. Wiss. Mik., I, 3, 1884, p. 350.

⁸ Beitrz zur path. Anat., I, 1886.

⁹ Int. Monatschrift für Anat., IV, 1887, p. 358.

¹⁰ Zeit. für. wiss. Mik., IV, 3, 1887, p. 328.

¹¹ Loc. cit. p. 58.

¹² Ueber Kern und Protoplasma. Festschr. Albert von Koelliker, Leipzig, 1892.

among these bodies such forms as "lance-like," "whetstone-like," "sickle-like," "boat-like," and "button-like." The number of these formations in a nucleus, varied from half a dozen, to twenty or more; some nuclei showing but a few, others being entirely filled with them. The size varied from minute granules, to long masses which equaled and sometimes exceeded in length, the diameter of the nucleus. The color of the formations, as indicated above, was a homogenous deep reddish brown. Occasionally a mass of rod-like forms gave a yellowish or brownish reflex with strong illumination.

Figure 1 gives an idea of the variety in shape, size, and arrangement of the forms in question, and represents fairly well the deep color and its contrast with the pinkish hue of the nucleus proper.

More extensive study of the section with the high powers, brought out several interesting facts. In many muscle nuclei containing the safraninophile objects, the ordinary chromatin framework with its nucleoli could be detected by its faint pinkish color. Many nuclei of the muscular tissue were also noted, in which the pink chromatin framework was visible, but which contained none of the deep red bodies in question.

In the red blood corpuscles of this preparation, the peculiar formations occurred in some of the nuclei, but here the uniformity observed in the muscle nuclei was absent; and it was further observed that the safraninophile bodies when present, were much smaller than in the muscle. In fact, it may be here remarked, that the described formations bore a very constant relation to the size of the nucleus in which they were found. Often the nuclei of the red blood cells appeared a homogeneous deep red color; again, they appeared entirely filled with fine red granules; and finally many nuclei could be seen in which the deep red bodies appeared distinctly visible on a pinkish background. A pink chromatin network could occasionally be seen in the nuclei of the blood corpuscles. The three red corpuscles in Fig. 2, show the variations in the nuclear contents.

The leucocytes in the sections from the frog's heart prepared by the safranin-iodine method, usually exhibited a faint pink nuclear network, it being only exceptional to find nuclei containing the deep red safranin bodies.

A number of sections from the same piece of tissue were stained in the above described manner, and they uniformly showed these strange nuclear contents. Several control sections were cut from the same piece of tissue, stained in the same safranin solution, but washed in alcohol acidulated with hydrochloric acid (1 to 1000); and in these sections the bodies were never found, but the nuclei only presented the ordinary chromatin pictures.

As these remarkable appearances were noted, a number of queries arose as to the nature and significance of the strange intra-nuclear bodies. Were these striking forms a normal structure of the nucleus brought out by this peculiar staining combination? Were they artificial products of some combination of the reagents employed? If so, were they produced by a combination of the sublimate and iodine and colored by the safranin; or were they the result of the iodine and safranin reaction? To answer these questions, I proceeded to make a number of experiments on sections from a variety of animal tissues prepared with various fixing and staining

combinations. The normal tissues studied, were from the salamander, frog, snake, turtle, cat, dog, sheep, pig, ox, and man. The pathological tissue was mostly from carcinomata and sarcomata. The objects from these sources had been fixed in Flemming's solution, Hermann's solution, absolute alcohol, and corrosive sublimate (Heidenhain's solution). In all cases in which the safranin-iodine stain was employed, control sections were stained with safranin, gentian violet, or other stain, after the common methods.

As a summary of these experiments, I may say that it was possible to produce the characteristic safranin bodies in all of the tissue, no matter what its source, or in what medium it had been fixed. That is to say, the safranin-iodine staining combination developed the deep red formations in sections of tissue fixed in Flemming's solution, Hermann's solution, and absolute alcohol, the same as in sublimate fixed tissue. The only difference to be noticed in the effects produced by the fixing agents, was that the ground stain in sections of tissue from an osmic acid fixing solution, was of a more brownish hue, in contra-distinction to the pink ground color of the sublimate sections. This was particularly true of tissue which had remained long in the osmic fixing mixture.

While it was always possible to demonstrate the deep red bodies in some portion of a section, none of my subsequent preparations gave the remarkably uniform appearance of the nuclei of the heart muscle of the frog. Many times the nuclei of one portion of a section were either unstained or showed the normal chromatin framework, while the nuclei of another portion would contain the safraninophile masses. It was particularly noted that the nuclei about the borders of a section seemed to retain the safranin bodies most persistently. In some sections also, dark brown spots, visible to the unaided eye occurred, and on examining these spots microscopically, they were found to be composed of a dark red mass of safranin bodies which resembled very closely those found in the nuclei. Again it was noted, that the safranin bodies were not always confined to the nuclei, even in sections showing none of the large masses; for in many preparations they occurred in the cell protoplasm. Concerning this diversity in the amount and situation of the formations, it was found that it depended upon the duration of the washing with alcohol which followed the staining; a short washing leaving many of the bodies, and a more prolonged washing making them less numerous, and more precisely confined to the nucleus. As in ordinary anilin staining, a stage could be reached with prolonged washing, in which all stain could be removed from the section.

As stated above, the size of the safraninophile bodies varied with the size of the nucleus; and in the same degree the shape of the individual forms seemed to vary, so that, instead of the preponderance of the rod or stick-like forms of the frog's heart muscle, an indescribable number of shapes often presented themselves.

With regard to the behavior of the various tissue elements, besides the fact already mentioned, that the peculiar condition could be produced in the nuclei of all the tissue studied, I will only direct especial attention to the reaction of the non-nucleated red blood corpuscles of mammalian tissue. In normal tissue fixed in Flemming's solution, and

stained by the safranin-iodine combination, the red blood corpuscles usually assumed a uniform brownish tint, and the *safraninophile bodies* were often found in their interior. The significance of the observation will appear later.

Several experiments with various solutions were made, and it was found that the peculiar reaction could be produced in sections stained in Babe's anilin-water safranin, as well as with the alcoholic solution. The most perfect result was obtained when strong (U. S. P.) tincture of iodine was allowed to act a minute or two. Weaker solutions of iodine in alcohol did not act so perfectly, though the safranin bodies were still formed if the iodine was permitted to act longer. In the few experiments I made, it was impossible to produce the characteristic appearance when safranin stained sections were treated with an aqueous solution of iodine and iodide of potassium.

My conclusion as to the nature of these safraninophile bodies is that they are *artificial crystalline products, the result of a safranin and iodine reaction*. That their production is in no way due to sublimate fixation, as at first surmised, is clear from their occurrence in tissue fixed in other media. I believe them to be of a crystalline nature, not only because of their resemblance to crystals when examined with high powers, but also from the fact that crystals of similar appearance may be produced by mixing safranin solution and tincture of iodine on a slide, as previously mentioned. The fact that these crystals are soluble in alcohol would account for the varying appearance presented with the varying duration of the washing process, following the staining.

The remarkable affinity of these crystalline safranin bodies for the nuclei, seems to me due to the fact, that the nuclear chromatin naturally attracts the stain most strongly, and retains it most persistently; and it is in the nucleus, therefore, that the safranin-iodine reaction is most intense, the production of crystals most pronounced; and the nucleus is that portion of the tissue from which the crystals would be last dissolved in the washing out process.

* * * * *

At the time in which I had made the observations on the safranin-iodine crystals, I was deeply interested in the investigations relating to the etiology of carcinoma, and it was at this time that the contribution of Podwysoski and Sawtschenko¹² came to my notice.

This work is of much importance in connection with the carcinoma organism question, not only on account of the high scientific reputation of the principal author, but also because of the very positive manner in which these investigators argue for the presence of coccidia in a variety of carcinomata examined by them.

After reviewing the literature of the subject, Podwysoski proceeds to describe his own investigations, and claims to have found certain intracellular bodies in twenty cases of carcinoma examined by him, which he can interpret only as true sporozoa.

The technique which gave the best results to these authors, consisted in fixing the tissue in Flemming's solution, staining in anilin-water safranin, and washing in *picric acid alcohol*.

The bodies described as coccidia were round or

oval forms, of varying size, usually of a brownish tint, and containing in their interior safraninophile "nuclear" substance. It is upon the presence of the safraninophile substance in these bodies that the authors lay the greatest stress, and in the varying relations and situations of these deep red particles, the writers interpret the different developmental stages of the coccidia. Of especial importance is the presence of "sickle-formed" and "spindle-formed" red masses, in the bodies which they designate coccidia; and bodies filled with these "sickle-formed embryos" they consider as ripe individuals especially diagnostic of coccidia or sporozoa. Certain masses or conglomerations of the round or oval bodies with safranin "nuclear" substance, and usually found in the lymph spaces of the carcinoma, are looked upon as spore cysts. Aside from the method of propagation by spores, a form of direct division is suggested, in which a mass of "nuclear substance" is found at each pole of a coccidium.

These investigators remark that the only tissue element which assumes a brownish tint similar to the so-called sporozoa, in carcinoma tissue fixed in Flemming's solution and stained by the safranin-picric acid method, is the red blood corpuscle; but the feature which distinguishes their coccidia-like cells from the red blood cells, is the *presence of the safraninophile substance in the coccidia, and its absence in the blood corpuscle*.

In a paper published some time previous to that of Podwysoski and Sawtschenko, Stroebe¹⁴ examined some fifty tumors, mostly carcinomata and sarcomata. He fixed his tissue in Flemming's solution, and stained the sections in safranin, then washed them in alcohol acidulated with hydrochloric acid, and finally with *alcohol to which picric acid was added*. In studying these preparations he noticed, aside from the usual chromatin network, homogeneous, round or oval bodies, containing deep red formations of a "lancet" form, "whetstone" form, and "navicelli" form, which were often seen singly and again in masses. Stroebe was uncertain as to the significance of the cells containing the dark red particles, though he evidently inclines to the opinion that they are parasitic forms. From his plate, which is unfortunately uncolored, it is seen that the safraninophile bodies of various shapes, sometimes occur in the nuclei, and again in the cell protoplasm. In Fig. 7 he shows a cell with a nucleus in mitosis, in the protoplasm of which two darker segments occur with "sickles" or "navicelli" forms. In Figs. 8, 9 and 10, he shows "vacuoles" pushing the nucleus aside and containing in their interior the irregular chromatic particles.

Podwysoski inclines to the view that the forms described by Stroebe are probably identical with his coccidia, and he believes that since Stroebe did not find the cells filled with "sickle-formed embryos" which he regards as so positively characteristic, he was not able to take a positive stand.

Without going further into a discussion of this subject, which has so many tempting aspects, I will proceed to a brief description of my own studies.

Even before I had made preparations after Podwysoski's method, I was struck with the resemblance of some of his figures to the safranin-iodine crystals

¹² Podwysoski and Sawtschenko. Ueber Parasitismus bei Carcinomen nebst Beschreibung einiger in den Carcinomgeschwülsten schmarotzenden Sporozoen. Cent. f. Bak. u. Parasiten., XI, Band, No. 16, 17, 18, 1892.

¹⁴ Stroebe. Zur Kenntniss verschiedener cellularer Vorgänge und Erscheinungen in Geschwülsten. Beitr. z. path. Anat. u. z. Allgem. Path., 11 Band, Heft. 1, 1891.

found in normal tissue. A reference to his beautiful plates, VII and VIII, showed in the first place, that many of the nuclei of the epithelial cells contained deep red, irregular masses, quite distinct from the lighter red of the chromatin proper. Among the inclusions, it was noted that the stained masses in their interior, exhibited the peculiar dark red color, and the diversity of shape, so characteristic of the safranin-iodine crystals. Particularly convincing in this respect were the safraninophile particles in the inclusions in Figs. 16, 17, 18, 19, 20, 25, 26 and 27, and also in the masses in the lymph spaces, in Figs. 21, 22 and 24.

I now proceeded to study some sections prepared after the process advised by Podwyssozki, employing for this purpose some carcinoma tissue which had been carefully fixed in Flemming's solution. For want of well fixed tissue, it has not been possible for me to extend my experiments as far as seems desirable: but in the half a dozen carcinomata from various sources, and in a well preserved piece of rapidly growing osteo-sarcoma, kindly furnished me by Prof. Van Hook, the results were quite uniform, so that, it seems to me, they should be judged qualitatively, and not quantitatively.

The sections of the paraffin imbedded tissue were fixed on the slide, stained with Babe's anilin-water safranin, washed in picric acid alcohol, cleared in clove oil and mounted in balsam. Other sections from the same pieces were stained in the safranin, and washed with tincture of iodine, followed by alcohol. Others still were stained in safranin, and washed with alcohol acidulated with hydrochloric acid: or they were stained with gentian violet, after Bizzozero's method.

One of the first objects studied was from a carcinoma of the larynx, and in sections of this tumor, prepared as advised by Podwyssozki, I was surprised to find in many of the nuclei, particularly at the border of the section, *safraninophile bodies which appeared identical with those produced by the safranin-iodine reaction*. These bodies occurred not only in the nuclei of epithelial cells, but also in the nuclei of the other tissue elements. Their color was the familiar brownish-red of the safranin-iodine crystals, and the size and shape of the bodies varied in the same manner as has been described. In the epithelial cells, the "lancet-like" forms predominated, and these were present either singly or in heaps.

In Fig. 5 is seen a group of epithelial cells from one of the sections of the carcinoma of the larynx, and it gives a good idea of the appearance of a group of cells in which these bodies are plentiful; though it was rare to find so many neighboring cells in a single preparation, showing the safranin bodies.

Fig. 6 shows four cells from the small-celled infiltration, in the same section as the above, two of which present well defined lanceolate safraninophile bodies.

The three large cells in Fig. 7 were found in another section of the same tumor, in a portion which appeared to be degenerating. From their surroundings, I am inclined to regard these cells as pus corpuscles, or other degenerating cells, containing the usual deep red masses. Particular attention should be directed to the shape of the safraninophile bodies in this figure as corresponding with Podwyssozki's "button-like," "crescentic," "sickle-like" and "navicelli" particles.

Upon discovering these safranin bodies to be produced by the safranin-picric acid method, I extended the staining method to sections of other carcinomata, and to sections of normal tissue. It was found that while the peculiar red particles were not invariably present in a section stained after Podwyssozki's process, they did occur occasionally in the sections, both of carcinomata and of normal tissue. So that it is clearly a fact, that brownish-red safranin bodies of a variety of forms are not found in carcinomata alone, when the safranin-picric acid stain is employed.

For the sake of comparison, sections from the same pieces of tissue as those employed in the last experiments were stained by the safranin-iodine method. Here the usual safraninophile particles were produced, and so far as microscopical appearances were concerned, the resemblance between these crystals and the bodies occurring in the safranin-picric acid stained sections was so great, as to lead me to the opinion that they were similar in nature. That is, that in both cases, the peculiar deep red formations were of a *crystalline nature, and the result of the safranin-iodine or safranin-picric acid reaction*. This opinion gained additional weight from the fact that it was possible to demonstrate a crystalline precipitate when safranin solution and picric alcohol were mixed, directly. It was observed also, in referring to this experiment in another part of this paper, that the production of the precipitate by safranin and picric acid was much more tardy than in the safranin-iodine reaction. This, it seems to me, would explain the preponderance of the safranin-iodine crystals, and the relative scarcity of the crystals of the safranin-picric acid reaction.

I regret not having had the opportunity, up to the present time, of extending my studies over a considerable amount of well fixed carcinoma tissue, because, for this reason, I cannot speak with confidence of a number of Podwyssozki's findings in this communication, which therefore, must be regarded in the light of preliminary report. Particularly is this true of the intra-cellular cysts containing safraninophile particles, for I must confess, that my search for such bodies as shown in many of Podwyssozki's figures has been poorly rewarded. Nevertheless, the deep red particles of "sickle-form," "spindle-form," "half-moon" form, and other forms described by these authors, and upon which so much stress is laid, bear so great a resemblance to the artificial safranin crystals of my experiments, that I cannot do otherwise than regard them as identical. Another point upon which I lay much stress is the presence of illy-defined deep red particles in the *nuclei of some of the epithelial cells* of Podwyssozki's figures, which he has so faithfully portrayed. If one of the deep red intra-nuclear particles were transferred to an intra-cellular cyst, it would make a safraninophile body precisely identical with many of those he has figured. As an example, the deeply stained particle in the nucleus of the epithelial cell in Fig. 17, plate 8, resembles in every way the "sickle-formed" chromatic bodies in the larger inclusion in the same cell.

I have encountered the heap-like collections of cells with safranin particles, which are designated "spore cysts" by Podwyssozki, in several of my preparations: particularly in those portions which were degenerating. Such masses I have regarded as leucocytes, and the deep red particles as safranin-picric

acid crystals. Many such leucocytes undoubtedly contain ingested chromatin, from cells which have degenerated. In Fig. 24, plate 8, Podwyszoski represents a mass of "sporozoa" occupying the place of an epithelial cell, which, according to his idea, has degenerated. If we recall Noeggerath's¹⁵ observations on the relations of leucocytes to carcinoma, wherein he describes very accurately the manner in which wandering cells take up the dispersed chromatin of degenerating carcinoma cells, and in which he mentions the possibility of leucocytes filling the devoured cell, then this figure of Podwyszoski's could be explained. His "sporozoa" would become leucocytes filled with particles of dispersed chromatin, aside from that which belonged to them naturally. This would account for the irregular arrangement and variety of color of the contained safraninophile particles. Aside from this, the fact that these leucocytes contained an excess of chromatin would naturally make them attract more safranin, and thus give them opportunity for developing more safranin-picric acid crystals than ordinary leucocytes.

It has been previously stated, that Podwyszoski and Sawtschenko observed that the red blood corpuscles were the only tissue elements which assumed the brownish tint characteristic of the sporozoa, in preparations fixed in Flemming's solution, and stained in anilin-water safranin, and picric-alcohol; but that the absence of safraninophile particles in the red blood cells always distinguished them from the coccidia. In the description of the safranin iodine method, I have referred to the fact that in normal tissue fixed in Flemming's solution, the red blood cells not only were stained a well marked brownish color, but that they also often contained the safraninophile crystals. Extending my studies to carcinoma tissue fixed in Flemming's solution, and stained by the safranin-iodine method, it was often possible to discover red blood cells, both within and without the vessels, of a brownish color, and containing the same safranin bodies observed in the blood corpuscles of normal tissue. Fig. 3, represents a mass of such red corpuscles, and especial attention is directed to the shape and arrangement of the safraninophile bodies, since they resemble so closely some of Podwyszoski's coccidia. Two of the corpuscles contain the chromatic particles at the poles, which calls to mind Podwyszoski's "direct division" of the sporozoa. If the nature of the cells in this figure were not otherwise clear, the corpuscle (a) at the right of the heap, which presents a profile view with the usual bi-concavity of red blood corpuscles, would remove all doubt.

But the occurrence of safranin bodies, in the red blood cells, was not confined to Flemming fixed carcinoma tissue stained by the safranin-iodine method; for I was also able to demonstrate similar deep red particles in the blood corpuscles of *preparations stained by the safranin-picric acid method*. Fig. 4, from a preparation of an *osteosarcoma* of the humerus, fixed in Flemming's solution, and stained in safranin-picric acid alcohol, shows three red blood corpuscles in a connective tissue space, every one of which contains safranin bodies. In this preparation the nuclei of the sarcoma cells showed a brilliant red chromatin network, which made a strong contrast with the deep brown tint of the blood corpuscles, and the

deeper red of their safranin bodies. From these observations it is therefore evident, that the red blood corpuscles, both of the safranin-iodine and safranin-picric acid preparations, *do contain safraninophile substance*; and from my other studies of this subject, I am prepared to assert that the safraninophile substance is an artificial product, and the result of a safranin-iodine, or a safranin-picric acid combination, as the case may be.

This being true, one of the most weighty supports is removed from the arguments of Podwyszoski and Sawtschenko. Now, if red blood corpuscles, leucocytes, and pus corpuscles, can contain the foreign safranin bodies, it is not unreasonable to presume that the blood platelets may also become the seat of similar chromatic formations; and if this be true, it is possible to furnish an hypothesis to account for many of the findings of these investigators. Without entirely committing myself, therefore, I desire to suggest, that many of the included cells with safraninophile particles figured by Podwyszoski, are red blood corpuscles, or blood platelets, or degenerating forms of these cells which have escaped into the tissue, and which have become the seat of artificial deep red precipitates.

Applying the preceding observations to the work of Stroebe, it does not become difficult to conclude that the intra-nuclear and intra-cellular bodies, which excited his curiosity, are closely related to, or identical with, the safraninophile particles produced in my experiments. This conclusion seems justifiable for several reasons. In the first place, Stroebe employed the safranin-picric alcohol stain in his preparations. Then the bodies described by him are decidedly safraninophilous. Their shape and size recalls the safranin-picric acid particles. Finally, the facts are equally suggestive that these safranin bodies occurred free, both in the nuclear and cell substance, and that they were sometimes single and again aggregated into heaps.

In connection with the recent studies on the structure and etiology of carcinoma, it is interesting to note that the question of the reagent effect has been mentioned by Hanseemann.¹⁶ In his latest defense of his theory of asymmetrical mitosis, against the attack of Stroebe, Hanseemann objects to certain of Stroebe's observations on the ground that the preparations contained *artificial products* which obscured the karyokinetic pictures. In this condemnation Hanseemann includes, also, the preparations of Podwyszoski, Coën, and Fischer, which were employed by Stroebe, and he says that while these preparations were doubtless useful for the purpose intended (studies in tissue regeneration) they were not available for studies in irregular mitosis. Now, if the preparations of Stroebe were useless for the study of nuclear phenomena, on account of the presence of foreign products, they certainly should be excluded in the more exacting researches required in determining the nature of the minute cell inclusions, which forms the subject of the work on the carcinoma organism.

The arguments herein presented may be epitomized as follows:

1. A precipitation of deep red material may be produced when the solutions of safranin and iodine, or safranin and picric acid are mixed, directly.

¹⁵ Beiträge zur Struktur und Entwicklung des Carcinoms. E. Noeggerath, Wiesbaden, 1892.

¹⁶ Ueber die Anaplasie der Geschwulstzellen und die asymmetrische Mitose. D. Hanseemann. Virchow Archiv., Bd. 129, Heft 3, 1892.

2. A precipitation of similar deep red material is produced *in tissue*, when safranin and iodine, or safranin and picric acid are employed in the staining process.

3. The precipitate occurs in any of the elements, either of normal or pathological tissue; and may occur either in the nucleus or in the cytoplasm.

4. This artificial product occurs in the cells of sections of carcinoma tissue, prepared as directed by Podwysoski and Sawtschenko.

5. Therefore, the multiform red particles occurring in the cells of carcinoma tissue prepared by the safranin-picric acid method, are artificial products; and since Podwysoski and Sawtschenko base their arguments on the presence of these red formations in their so-called "coccidia," their conclusions must be valueless.

It is not my purpose to deny that some of the bodies seen by Podwysoski and Sawtschenko, and also by Stroebe, may have been sporozoa. Much less do I intend, in this work, to dispute the presence of coccidia in carcinomatous tissue, or to enter upon the question of the possible etiological relation of protozoan microorganisms to these neoplasms. However, since these investigators employed a micro-technical method, which my experiments lead me to believe is a faulty one, because it gives rise to dangerous foreign products; and since they make the bodies which I believe to be foreign, the decisive issue of this work, it can only remain for me to take an opposing attitude.

It certainly seems an opportune moment to point out the errors of Podwysoski's method; for not only is the work of Podwysoski and Sawtschenko extensively quoted, and credited; but many investigators are straining their eyes to discover the all important lanceolate, crescentic, semi-lunar, falciform, and "navicelli" bodies; and finding these characteristic formations in carcinoma tissue they must confirm the work of these authorities.

To correct a point which may not have been made altogether clear, I desire to state that it is not my intention to throw discredit on *safranin* as a valuable staining substance, for, when followed by a washing with alcohol acidulated with hydrochloric acid, I believe it gives results which all of our knowledge of staining reactions leads us to believe are reliable. But to follow safranin staining with a subsequent washing with a solution containing iodine or picric acid, I regard as not only unscientific, but positively dangerous.

EXPLANATION OF PLATE.

All of the figures were drawn by the aid of the Abbé camera lucida, with a tube length of 160 mm.; drawing paper on the table. The Abbé sub-stage condenser was employed in obtaining illumination.

Figs. 1 and 2 were made with Bausch and Lomb's one-twelfth inch oil immersion objective (Continental Series), and Leitz ocular 4. The remaining figures were all drawn with the Leitz one-twelfth inch oil immersion objective, ocular 4.

FIG. 1. A group of nuclei from the heart muscle of the frog, representing the appearance of the safranin-iodine crystals as first discovered. The relative size and the shape of the bodies is well shown, together with the contrast of their reddish-brown color, with the pinkish hue of the nucleus proper. The nucleus (*a*) is seen in transverse optical section.

Preparation.—Corrosive sublimate, Plitzner's safranin, and tincture of iodine.

FIG. 2. Three red blood corpuscles from same section as Fig. 1. The safraninophile particles are seen in the nuclei

of the corpuscles. The nucleus (*a*) is nearly filled with a finely granular, deep red mass, giving it an almost homogeneous deep red color. In (*b*) only a few safranin bodies are seen. They present a variety of shapes, which doubtless depend upon the attitude from which the bodies are viewed. In the nucleus (*c*) the bodies are larger and more numerous. These three corpuscles represent approximately well the difference which was often observed in the nuclei of the tissue elements of a single section.

FIG. 3. A group of red blood corpuscles from a carcinoma of the larynx. Illustrating the brownish tint of the corpuscles, and the deep red of the safranin bodies. At (*a*) is shown a corpuscle which presented a profile view, and which exhibited well defined bi-concave surfaces. The safraninophile particles in (*b*), (*c*), and (*d*), cause them to bear a great resemblance to the "direct division" of Podwysoski's coccidia.

Preparation.—Flemming's solution, Babe's anilin-water safranin, and tincture iodine. The tissue had remained some days in the Flemmings solution, and the section exhibited a marked brownish tint from the osmic acid staining.

FIG. 4. From a rapidly growing, medullary, osteo-sarcoma of the humerus, showing three red blood corpuscles in the sarcoma tissue, which are distinguished by their brownish color and their deep red safraninophile particles. A number of blood corpuscles were found exhibiting a similar appearance in various portions of this section, which, from their relations, and resemblance to other corpuscles, left no doubt as to their identity.

Preparation.—Flemming's solution, Babe's anilin-water safranin, and picric acid alcohol.

FIG. 5. A group of epithelial cells from a carcinoma of the larynx (same tumor as Fig. 3). These cells were found near the border of the section, and their nuclei presented a large number and variety of safranin-picric acid bodies. The excess of the "lanceol forms" will be noted.

Preparation.—Flemming's solution, Babe's anilin-water safranin, and picric acid alcohol.

FIG. 6. Four cells from the small-celled infiltration of the same section as Fig. 5. A variety of deep red safranin particles are seen in the nuclei.

FIG. 7. From a degenerating portion of the carcinoma of the larynx. Three large cells, showing crescentic, semilunar, falciform, "navicelli," and "button-like" safranin formations. These cells were lying free in a granular detritus which contained fragmenting leucocytes, degenerating carcinoma cells, etc. These cells are doubtless degenerated leucocytes (pus corpuscles); and their contained bodies are safranin-picric acid crystals, since they resemble the safranin-picric acid bodies found in other portions of this section.

Preparation.—Flemming's solution, Babe's safranin, and picric alcohol.

In all cases, the tissue employed in this study was cut in small pieces immediately on its removal from the body, and at once dropped in the fixing solution.

IDEAL SURGERY.

Read before the St. Louis Medical Society.

BY G. WILEY BROOME, M.D.,

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Mr. President:—It is plainly apparent to the student of medicine that the practice of modern surgery is wholly unlike the practice which prevailed, and was approved, only a few years ago.

In the light of advanced surgical pathology, bacteriology, and the now more familiar processes of regeneration and repair, modern surgical methods bear but slight resemblance to those that were practiced a very short time ago.

It is furthermore clearly apparent that the whole tendency of modern surgery is to secure ideal results, and at the same time to keep the practice well abreast with the revolution necessitated by the indications discovered through intelligent clinical observation, scientific investigation and experimental research.

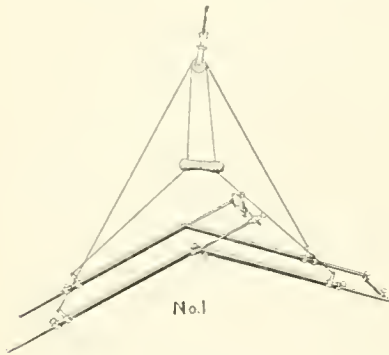
The scope of this modern ideal surgery—it may

be emphatically stated at the outset—does not embrace a rule necessitating the adjustment of a class of cases to a certain mechanical device, in order to secure ideal results; but it does require to act intelligently and institute such methods of treatment as will best serve the purpose in each particular case.

Modern scientific surgery can only contemplate such rules in the light of impediments to its progress, as true science is not and never was dogmatical. The orthodox apparatus must be eliminated from the instrumentarium of the surgeon whose aim is to achieve the ideal of liberal scientific surgery.

I recently heard a distinguished surgeon state in one of his lectures, "that one great hindrance to progress is the inexorable *penchant* of the masses of the profession to adapt cases to old established plans of treatment. One mounts a hobby and soon others follow. Nothing, he thought, could have a more pernicious effect upon universal scientific surgical advancement."

In consequence of the disparity of opinions expressed here a few evenings ago in the discussion of a report presented by Dr. Outten to this Society, I believe that a brief inquiry respecting the present status of progressive surgery will not be considered untimely or inappropriate. With reference to the treatment of compound fractures of the thigh

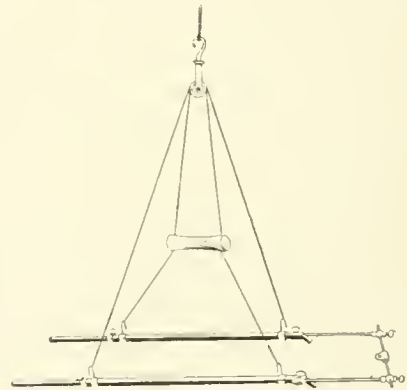


bone. I wish to reiterate what I then said respecting the use of the Hodgen splint, and which was forcibly illustrated in the case shown here by Dr. Outten. The man's injured extremity got well, it is true, after nearly two years of close confinement; but in consequence of the position in which the limb was kept, the knee-joint became perfectly stiff and unyielding, with also great angular deformity at the site of fracture.

I wish to state here that very soon after I graduated in medicine, I was employed as the chief surgeon of the Wabash Railroad Company, and held that position during eight years. It was after practicing a year or so in this field of surgery, that it became painfully apparent to me that the Hodgen splint proved to be defective in two essential particulars, namely: first, that it did not retain the ends of the broken bone in apposition; secondly, that by applying extension at the foot, and the leg retained in a position nearly straight, there was entailed great impairment of the functions of the knee-joint.

You will bear in mind that Dr. Hodgen himself applied his splint to many of my cases, as he, until the time of his death, was the chief consulting surgeon at this end of the line of that railroad company. The attorneys of that company frequently complained that the assessment of damages against

the company for personal injuries was quite as large in consequence of the impaired knee-joint (a condition wholly the effect of the splint), as it was for the injury itself. Actuated by a sense of duty toward my employers, and for the welfare of these patients, about this time I devised and made this splint which I now show you. As may be seen, my modification of the suspension apparatus is constructed upon the plan of a double incline plane. The limb is dressed in a more physiological position—that is, semi-flexed, with the extending force fixed in front of the knee instead of the foot. By this splint the knee-joint is completely protected from overstrain and its baneful consequences. You will also observe that the splint is so constructed as to enable the surgeon to readily adjust it to any sized limb, including the arm. In adapting the apparatus to the suspension of the arm the distal rods must be disconnected at the middle joints, the thigh braces proper may then be used at once as a complete suspensory apparatus for a shattered arm. (This is the part of the splint used for that purpose.)



I exhibited the same to Dr. Hodgen, and he expressed to me his approval of my modification. I continued to use this splint during the years I remained with the company, and no more complaints or excessive demands for compensation were ever made from persons with disabled knee-joints after the treatment of broken thigh bones. (This device, together with an illustration of the splint, were published by Dr. Borek, of this city, in 1879—fourteen years ago.)

Now while this apparatus protects the knee, and in that respect it is a great improvement on the Hodgen splint, nevertheless it is still defective, and does not fully come up to the requirements of ideal surgery. But it was one step in that direction.

Modern surgery received its first impulse at the time when Virchow published his scientific discovery of cellular pathology, in the year 1858.

The demonstration that cells are derived from pre-existing cells came as a revelation to most physicians throughout the world.

The principles of cellular pathology have become to such an extent an integral part of medical thought, that we can hardly estimate, to-day, all that this discovery meant a generation ago.

To do this we must put ourselves back, in thought, to a time when all organized pathological products, pus, tubercle, cancer and all tumors, were supposed to be formed out of a primitive blastema—an exudation of some kind.

Under the influence of such ideas, any coherent or intelligent opinion as to the nature and development of morbid processes would be quite impossible. The never-ending strife between humoralism and solidism would probably be going on to-day had it not received its deathblow from cellular pathology.

The ontological conception of disease processes passed out of the horizon of scientific medicine when this discovery was made.

With the recognition of this great discovery, it became clearer than ever before, that the laws in disease are not different from those in operation in health, but are simply subject to different conditions.

The second splendid era of scientific value to the modern surgeon was inaugurated through the labors of the distinguished botanist Schleiden, whose brilliant conclusions, as they were drawn from the study of vegetable histology, were at once extended by Theodor Schwann to the animal kingdom; and then soon followed the demonstration of the migration of the leucocytes from the vessels and of the specific cellular germs of disease; now the inestimable discovery of W. Fleming designated by the term karyokinesis, or the indirect mode of cell reproduction, was published to the scientific world.

Out of those researches the function of the cell, in the process of regeneration and repair, became better understood; and it was soon demonstrated that the function of cell life includes, in a condition of perfect health in the matured body, the normal waste incident to the increasing activity of the tissues; and is balanced by the reparative process, while during the development of the body, an excess of material is added.

From a surgical aspect, cell reproduction or regeneration observed in the healing of wounds produced by severe injuries, and the complete or partial restoration of parts damaged or destroyed by this, and various destructive inflammatory processes caused by the presence of specific pathogenic microorganisms, is a study essential to secure ideal results in the practice of surgery.

There is no doubt existing now in the proposition, that an injury, defect, or the loss of considerable substance, will be repaired from proliferation of preëxisting cells, which compose the structure sustaining the injury, defect or loss of substance. The fixed tissue-cells at the site of injury being endowed from earliest embryonal life with intrinsic power of adaptation to existing conditions surrounding them, assume active tissue proliferation; and the embryonal cells thus produced constitute the granulation tissue, which toward the completion of the healing process, is transformed into mature cells, representing the injured parent tissues which have undergone the reparative process.

The third era, constituting the simple conception, the basis of early antiseptic procedure in surgery, that a wound to which bacteria gain access becomes infected in the same way that a sterilized infusion of meat undergoes putrefaction when a single suitable germ enters, has, it is true, been greatly modified; but the establishment of this truth even before its complete demonstration and the introduction of wound treatment based upon it, must remain forever the merit of the immortal Lister. It is the knowledge of the "how" to obtain aseptic healing of wounds, that has revolutionized surgical practice and made modern ideal surgery possible.

Soon the fourth era of this brilliant evolution in the progressive stages of scientific surgery began to take form. It was not long after cell life was cleverly understood until Metschnikoff and others, by certain methods of scientific investigation, demonstrated the fact, that the living tissues were not passive breeding places for bacteria, but that they were able to offer a very considerable resistance to the growth of microorganisms. This discovery was a great boon to the surgeon, for by it he was emancipated from the superstitious dread attending a particular surgical procedure where, from unsurmountable circumstances, the *débridement* is unavoidably imperfect and a limited number of bacteria gain access to the wound.

It is owing probably to this fact of phagocytosis that many cases of imperfect asepsis in surgical operations often heal well. It has been demonstrated by Cheyne and others that doses of less than 18,000,000 of the proteus vulgaris when injected into the muscular tissue of a rabbit seldom cause any result, and it requires as large a number as 250,000,000 to produce a circumscribed abscess.

But of course the condition of the serum, together with the macrophagi and microphagi at the point at which the organisms are arrested, is also a matter of great importance. Tissues which have been damaged by injury, bad surgery, or defective surgical appliances, are not so resistant to the action of bacteria as when in a state of health. A healthy peritoneum may receive and absorb a large number of bacteria; but if damaged during a laparotomy, so that a considerable portion of its absorbing surface has been impaired, and at the same time considerable oozing of blood and serum has taken place from the injured surfaces, a soil favorable for the growth of the organisms is produced and a septic peritonitis may result, even though the operative procedure in other respects may have been conducted under an ordinarily intelligent aseptic detail. Tense sutures also are more likely to be followed by stitch abscesses than where the suture margins are so coaptated as not to destroy the chemotactic properties of the leucocytes and other elements concerned in phagocytosis.

In the light of these discoveries we have learned that suppuration means a destructive process, the significance, and remote effects of which, can only be fully appreciated, by the surgeon, whose best efforts are exercised in behalf of humanity, and the ideal of scientific work: suppuration itself means microbial action upon healthy tissue elements, in which *leucocytes and embryonal cells are converted into pus corpuscles*. And it has for some time been known, that long continued suppuration of a wound produces amyloid degeneration of organs remote from the seat of suppuration; that is, by the accumulation of the ptomaines of pus microbes, coagulation necrosis may be produced in other organs of the body, and amyloid degeneration as a consequence.

Hence, after prolonged suppuration the patient can never hope to regain his former functional vigor, therefore the importance of preventing or arresting all suppurative action.

Senn long ago made the assertion that pus microbes are the immediate and essential cause of suppuration, inflammation and pus formation; and no one has as yet been able to successfully contradict

that assert on. So that the etiological explanation, of wound infection, and suppuration, is based wholly, upon the presence, and action of the pyogenic bacteria and their ptomaines.

The chief aim, and object, of ideal surgery, is to prevent suppuration, and secure the healing of a wound, by the first intention, and without suppuration. In a wound where there has been so much loss of substance, as to prevent a proper approximation of the parts, it must of necessity heal by granulation. In the ideal treatment of wounds, the classification into "open" and "subcutaneous" wounds, there is no longer the same practical importance, as an open wound is at once placed under the same favorable conditions for satisfactory and rapid healing, as a subcutaneous wound. It was stated here by several gentlemen who took part in the discussion of Dr. Outten's paper, that an open wound must be exposed to frequent inspection, and that it must also have drainage tubes passed through it.

The fundamental principle underlying ideal wound treatment, as I have stated, consists in preventing suppuration. To prevent suppuration in an open wound, the wound and its environment must be kept aseptic. I do not believe that any progressive surgeon will attempt to deny the force and truth of this assertion.

The indications to be met in a compound fracture of the thigh, for example, are first, the disinfection of the entire wound and its environment; second, the approximation of all the structures implicated as near as possible to their normal anatomical relations, *i.e.*, bone to bone, periosteum to periosteum, muscle tendon and nerves to muscle tendon and nerves, skin to skin, and direct fixation, over which is applied a thick hygroscopic dressing, then immobilization. If these indications have been completely fulfilled, the dressing should not be disturbed for from four to five weeks. *This is ideal surgery.*

When the profession can realize that fractures must be treated in the same manner, as the soft parts, in order to secure union by the first intention, then and not till then, will humanity have ceased to suffer from the surgery of dogmatism. The traditional methods, which depend upon provisional callus, in the union of a broken bone, have no place in modern methods.

The orthodox apparatus which demands the adjustment of all cases to any antiquated system, and necessarily to defective notions, has been eliminated from the instrumentarium of ideal surgery.

There is no longer any room for argument against the danger involved and the unsurgical system of treating wounds by the open method. That era belongs to the past and to history, a practice which modern surgery looks back upon with horror; a wound treated in a manner that constantly exposes it to infection and consequent suppuration and amyloid degeneration of other organs, receives no consideration from ideal surgery. As to the use of the drainage tube, I cannot express my own views more forcibly, than in the words of the celebrated surgeon and author, Thomas Bryant, of London, who said, "I always regret to see a rubber drainage tube passed through a wound; it may be through a joint, or through a thigh, or stump; such a drainage tube is a seton, and is not necessary." If a drainage tube through a wound in the thigh acts like a *seton*—as this distinguished surgeon says it does—then the sur-

geon who places it there may be held responsible for the baneful sequence of long continued suppuration.

Roswell Park, of Buffalo, who is not only a great surgeon but also a pathologist of world-wide fame, stated before the congress of American Surgeons two years ago, "That drainage is mainly practiced from habit or from fear. The promiscuous practice of drainage is a confession of fear or weakness; both of which are unscientific and unfortunate." I might multiply evidence in this direction, but to an intelligent body of scientific men it would seem superfluous. As suggested, when discussing Dr. Outten's case, the favorable progress and termination of such a wound, depends almost wholly upon how perfectly the wound has been purified and the first dressing applied. By "purifying" is meant securing a most thoroughly aseptic condition, by cleansing the entire interior of the wound in every nook and recess of possible infection; and in order that the wound may be rendered perfectly free from microbial contamination, it may be necessary, at varied intervals, to allow the patient a few whiffs of an anæsthetic, that the work may be properly performed without great pain. After securing this moderate degree of anæsthesia, the surface of the limb from the abdomen to the toes is thoroughly shaved and washed with hot water and brush. If grease or other filth of this nature from machinery is found in the wound, rubbing with sweet oil or with turpentine and alcohol before scrubbing with soap and water, greatly facilitates complete asepticism. Wounded vessels must be tied, all parenchymatous oozing stopped, blood clots and foreign particles removed, divided muscles, tendons and nerves sutured, the ends of the fragments trimmed, if necessary, and destroyed tissues cut away. This work completed, the wound is now thoroughly irrigated with hot solutions of first sublimate and then chloride of zinc. The latter penetrates the tissues and acts as a stimulant to the disabled structures; besides it possesses well known germicidal properties. The ends of the broken bone may now be approximated and fixed by wire sutures or ivory nails or some such device. In the event that there has been loss of bone substance, Bercher suggests the implantation of a solid bone cylinder adequate to compensate for the loss.

Senn, the pioneer of bone surgery, appreciating more completely than perhaps many others the scientific value of cultivating the implantation of even a foreign substance in bone in order to fill up a space made vacant by any loss of substance, wires a hollow bone cylinder between the ends of the shattered bone, thus imitating nature as perfectly as possible; and the healing process proceeds upon the same principle, so beautifully illustrated in the healing of wounds, beneath a moist blood clot, first brought into practical utility by the renowned Schede. Even though a muscle, a nerve, or a tendon, may have sustained a considerable loss of substance, by the violence producing a compound fracture, and the ends cannot be properly approximated, they must be sutured, just the same. Large cat-gut sutures, must be used for the purpose, and several sutures introduced; these suture strands, will serve as a "false work" over the breach, upon which the embryonal cells, may construct a more substantial bridge, gaining thereby almost perfect *restitutio in integrum* and the attainment of a perfect functional result will be secured in a short time; otherwise the muscle, nerve or ten-

don having sustained the loss of substance, will retract, and their ends heal by granulation and cicatrization with almost total loss of functional activity, as in Dr. Outten's case. An efficient external support is applied to the thigh and this together with the dressings are allowed to remain for several weeks. If death of any portion of the injured tissues takes place, it will be *aseptic death*, and no harm can follow. Thus, *ideal results are achieved, and the ideal of scientific progress consummated*, and the further advance toward that which we should all desire the most, namely, the *prevention of deformities, the relief of suffering humanity, and the prolongation of human life and usefulness*.

The special points in the foregoing remarks that I wish to emphasize, may be epitomized in the following brief conclusions:

1. That by the development of cellular pathology the process of cell proliferation, and the discovery of the laws of repair and regeneration, and the introduction of Lister's antiseptic system, the principles underlying the practice of surgery have undergone a complete revolution within the last few years.

2. That the principles of scientific surgery are so intimately interwoven with the advances in bacteriological pathology, that a progressive knowledge of the latter is essential, in order to be able to intelligently appreciate its value, in practical surgery, or to comprehend the principles upon which ideal surgery is founded.

3. That the observation made by Cabot, "That every surgical operation is an experiment in bacteriology," proves to be full of wisdom.

4. That the merely antiseptic era has been passed by modern surgery and the trend of the surgery of the future is to purely aseptic procedures; antiseptics is gradually being supplanted by asepsis and disinfection is made unnecessary by avoiding infection.

5. That to secure ideal results in the treatment of compound fractures the injury of the bone must be treated upon the same general principles that are applied to secure union by the first intention of wounds in soft parts; that is, by carrying out in detail the rules of asepsis and antiseptics, immediate and perfect reduction, approximation with direct fixation, efficient external support, and immobilization.

SUPPURATIVE PERFORATIVE OSTEO-MYELITIS OF INFERIOR MAXILLA,

AND MULTIPLE SUPPURATIVE OSTEO-MYELITIS OF TIBIAL SHAFT, IN ANOTHER PATIENT.

BY THOMAS H. MANLEY, M.D.,

SURGICAL CLINIC AT HARLEM HOSPITAL, NEW YORK.

Dr. Manley stated that he had been specially fortunate, in being able at the same clinic to exhibit two very interesting cases of an identical pathological process, in two different subjects, who, in each, presented, however, very widely diverse conditions, as to age, general condition and the seat of lesion.

The first case was a young woman, born of healthy parents, in Germany 27 years ago. She was cigar-maker by occupation and always enjoyed good health until two years ago. He said you will notice that she is of slight build, fair complexion, bright eyes, but of anæmic appearance.

Two years ago she had the left lower bicuspid and

first molar tooth extracted. Since then she has had constant trouble with the left lower jaw. At first there were neuralgic pains, then swelling and tenderness along the ramus of the left lower jaw; and finally, something about fourteen months ago, an abscess formed and burst, just a little posterior to the anterior surface attachment of the masseter muscle into the same jaw-bone, in other words, about three lines posterior, to the point at which the facial artery winds over the free border of the jaw. She has been under various practitioners' care, trying, in turn, antiseptic solutions, iodoform ointment, poultices, and caustics; but in no instance with any substantial benefit. It had been dried up or healed, in this time, twice; but each time with the closure of the drain her sufferings were aggravated, until it reopened.

Along with the disfiguring effect of the opening, she has to continually wear some sort of absorbable material to soak up the drip, which intermittently escapes from it. Now, the question arises what is the nature of this lesion and where is the precise source of this discharge?

She denies specific disease, and it surely is not malignant: this case, then, is one which in modern times is known as tubercular. But how did she acquire tuberculosis? She did not inherit it, nor has she been subjected to contagion. The fact of it is, she has what our fathers in medicine would have designated a strumous-diathesis. At the time of the extraction of these teeth the alveolar arch was damaged by misdirected forceps pressure, or else the dentist has left the necrosed fang of a tooth imbedded in the jaw. This has acted as a splinter or foreign body, so that we have a condition present, dependent on two distinct conditions. First, a constitution-cachexia, plus a traumatism. The precise source of this sinus which opens through the soft parts, is in the osseous elements of the jaw.

The prognosis, in tubercular disease in bone is said to be unpromising in adults. This is correct, when the process extends into, and involves the joints; but it certainly is not when the lesion is limited to the shaft or diaphysis, as in this case; for though I have treated a considerable number of this description, I have yet to see one which did not promptly and permanently recover. The operative technique, in this case, will consist of the application of a few simple principles of surgery. First, go into the mouth and make a deep furrow, with the scalpel down on to the alveolar surface of the bone, at the suspected point. If we come on a fang, and I think I can feel one, freely strip and extract it. Next, make a free opening over the small sinuous fistula and trace it to the point of disease in the bone. Scrape away all the softened carious bone, trim away the cicatricial, calloused edges of the ulcer and firmly seal in the cut with fine silk. We will do the draining through the mouth. The patient being ready, the first step in the operation was to enter the buccal cavity and extract the long angular necrosed root of a tooth. Now, the operator seized a small pointed gouge and scraped the cavity from which the dental substance had been removed. He said that here the bone was so rotten and friable that he could push his little finger entirely through the bone shaft into the opening in the skin. A direct communication was now made, the cavity of the mouth being continuous with the external opening. After grattage

and irrigation the external wound was pared and carefully sutured, when the usual aseptic dressings were applied.

The second patient, was a boy ten years old with the following history: Six months previously he had scarlet fever, after which he suffered from nephritis, and rheumatic pains in the lower limbs. About three months ago, two suppurative points broke out on the inner surface of the left leg, from which a sero-purulent matter has since issued. After awhile along the same plane, and on the same surface, many other purulent foci erupted, and now as can be seen, one side of the limb, from the knee downward, is covered with port-holes which communicate with necrosed bone. Twice the pus has made its way to the surface. All severe pain in the limb has ceased.

What is the pathological character of the process which has led to such extensive bone disease? Is the lesion tubercular? In answer to this one might ask, is the specific germ present? We may say, that it has not been proved. In fact, I attach no importance whatever, to the presence or absence of this germ, for it is incontestibly true that we may, and do have strumous disease, so-called tuberculosis without the bacillus. And, again we often find myriads of them, in the laudable pus of a healthy strumous wound. The fact is, that the basis of this boy's disease is blood change. The poison of scarlet fever is terribly destructive to the blood, and the vasomotor nerves. In this case, the deeper layers of bone, lining the medullary canal have simply perished, through mal-nutrition. It may be noted that although there is extensive disease of this boy's leg, yet he walks without a limp. This is commonly found in all cases, where the bone lesion is at a considerable distance from an articulation.

On an examination of the limb, I find a probe will enter any one of those apertures and penetrate deeply into the medullary cavity. Small, loose particles of sequestra can be felt at the top of the probe. Now, I will by surgical interference endeavor, at least, to do to this boy no harm; that is, I will simply enlarge those openings and endeavor to pick out with the dressing forceps, the fragments of remaining dead bone, which the natural processes of life are, unaided, rapidly disintegrating and throwing off, by liquifaction. It might be said that as I have not very extensively opened the cavity of this bone some microscopical foci of the disease may have remained. But, in my experience the generalization of tubercle is never dependent on a local lesion; hence, I am confident that in operating in these cases, it is better to err on the side of conservatism, than to take chances on an extensive mutilation and consequent damage to structures, which might have been preserved, if nothing whatever had been done, other than by a tentative therapy.

PRACTICE OF MEDICINE IN ANCIENT ROME.

BY J. F. JENKINS, M.D.,
OF TUCUMSEH, MICH.

In an early day, the practice of medicine in Rome was chiefly confined to foreigners, principally Greeks. Most of the physicians whose names are handed down to us are of Greek origin, yet there were many Egyptians and Syrians, who practiced medicine in Rome as well as in the provincial cities.

If we go still further back in the history of Rome,

we find wealthy families who kept many slaves, and would have one of their number skilled in the medical art, who would gratuitously practice for the household but received compensation from those outside of the household.

During the reign of the Cæsar's, and the century following many physicians in Rome became very popular; some of them received large fees which would compare very favorably with the fees of the popular physicians of the present day.

Pliny the Elder states that an ex-actor, who had leprosy paid a physician 20,000 sesterces, about \$8,000, but he does not state how long he attended him, whether it was for one visit or for several of them. The same author states that there were five physicians in his day whose annual income amounted to 250,000 sesterces, equal to \$10,000 per annum. The physician to the emperor Claudius, Stertinus by name, received 500,000 sesterces, or \$20,000 per annum, still he claimed he could make in private practice 600,000 sesterces or \$24,000 yearly. The amount which this physician received from Claudius is probably equal if not greater than the salary of any modern court physician.

Stertinus and his brother who was also a physician, left a fortune of thirty millions of sesterces, or one million two hundred thousand dollars, besides making large donations during their lifetime to the city of Naples. Pliny mentions another physician, named Cranus of Marsailles, who gave largely, and spent money very freely, yet, notwithstanding his extravagant life, left a fortune of ten million sesterces, a sum equal to four hundred thousand dollars.

In the Roman empire, there was no law regulating the practice of medicine consequently many, as in our day commenced the practice of medicine with little or no preparatory education; many left trades and other occupations, and with a large supply of effrontery commenced the practice of the healing art. Like their modern type, some succeeded while others failed.

During the first century of the Christian era, there had developed all sorts of specialists; there were surgeons, gynecologists, oculists, aurists, dentists, etc., in all probability as great a variety as the nineteenth century has developed—in this way we find history repeating itself. Different schools of medicine existed, among which may be mentioned the "wine-givers" who no doubt were very popular in their day; the cold water doctors, one of whom named Antonius Musa gained the reputation of saving the life of the first Roman emperor, Augustus, although it is said that he killed Marcellus.

Pliny makes a statement that we very often hear at the present day, that physicians frequently try experiments upon their patients, and that the doctor is the only man in the community who may kill people without punishment.

Doubtless medical knowledge had made some progress since the days when Hippocrates taught the healing art under that famous old tree in the Isle of Cos, but our means of knowing how much progress was made is very limited, yet when I looked over the house of the surgeon in Pompeii, and examined the instruments that were taken out of this house, (which are in the museum at Naples), I am led to believe that the educated physician and surgeon of that day was in every way equal to the civilized society of the first century.

EYE TROUBLES WHICH CONSTITUTE A FRE- QUENT SOURCE OF HEADACHE, VER- TIGO AND NAUSEA, AND OTHER NERVOUS DISORDERS.

Series of four lectures delivered at the Fourth Special Course of the Chicago Polyclinic.

BY F. C. HOTZ, M.D.,

PROFESSOR OF OPHTHALMOLOGY.

LECTURE IV.—SUPRA-ORBITAL NEURALGIA AND GLAUCOMA.

Fourth group.—While in all the affections of the three preceding groups the eye-ball showed no sign of disease, but exhibited an absolutely normal appearance, it is always decidedly changed in the fourth and last group of ocular affections we have to deal with. And while in the three other groups your failure to connect the headaches and other nervous symptoms with the ocular affections would have no serious consequence, it may result in the loss of the eyesight, if you fail to recognize at once the disease of the fourth group as the cause of the violent migraine with nausea and vomiting your patient wants you to relieve him of.

Gentlemen, I am referring to the fact that the severe neuralgic pain and the violent gastric disturbances, induced by acute glaucoma, have been taken and treated for "rheumatic or malarial" neuralgia while the ocular disease has not been recognized until it was too late. I have seen several instances of this mistake: one was an especially sad case which impressed me so much that I shall never be able to efface its picture from my memory. Though fifteen years have gone by since I have seen the unfortunate patient her image is before me now as vivid and distinct as if I had seen her but yesterday. Two months before I saw her, she had been seized with fever, nausea, frequent vomiting and violent pain extending over the entire left side of the head. Her physician pronounced her trouble to be gastritis and "sick headache," and when the old lady called his attention to the fact that her sight was getting poorer every day (and she could see with the left eye only; for the sight of the right eye had been destroyed by glaucoma ten years previously) he assured her she need not worry about it; that her sight would return as soon as the stomach trouble was cured and the neuralgia in the head relieved. Having implicit confidence in her physician she believed his word and though her sight soon had vanished completely she waited hopefully for the day when the darkness would be lifted again from her eye, and patiently endured the constant, most violent headache which robbed her of rest and sleep by day and night. For two weary months this poor woman suffered and hoped; but then her patience was exhausted and much against the will of her physician she went to consult an oculist. Poor woman! It was too late. The continued high tension of glaucoma had done its deadly work upon the optic nerve too thoroughly; and although the iridectomy effectually reduced the intra-ocular tension and promptly relieved the patient of the terrible headache so that after the operation she could enjoy a good quiet sleep—for the first time in eight weeks—the woman has never seen a ray of light again—the awful result of a mistake in diagnosis!

But such mistakes should not occur; they are inexcusable; for they can easily be avoided. It is a

very fortunate coincidence that to-day there is in our clinic a case of supra-orbital neuralgia and a case of glaucoma because they afford a good opportunity of pointing out to you the several features by which the simple neuralgia may be distinguished from the glaucomatous neuralgia.

This young man has for the last three days suffered with severe pain over the right side of his head: the pain began every morning about eight o'clock, starting over the right eye and extending upwards and backwards, but never over to the left side of the head. It increased in intensity till about 10 o'clock, continued for several hours and then gradually subsided. By three o'clock p.m., the paroxysm was over to begin again at eight o'clock the next morning. At the present time the attack is pretty well on; you can tell by the patient's countenance that he is suffering, and he will tell you so too. The supra-orbital notch is quite sensitive to the pressure of my finger; the eye is red, weeping and quite sensitive to light. But its vision is not impaired; the cornea is clear and bright, the pupil of normal size and readily responding to the influence of light. The fundus can well be illuminated by the ophthalmoscope and appears normal; the eye is not tender to the touch and shows a normal degree of tension. This then is a true supra-orbital neuralgia, and the regular periodicity of its paroxysms would indicate its malarial character.

Now the attack of acute glaucoma also begins very suddenly with supra-orbital pain which spreads over the whole side of the head, and is also strictly limited to the one side. And if in addition it is ushered in by a chill, and accompanied by nausea and vomiting, as it often is, the similarity with "malarial" or "sick" headache is indeed very great; and like the sick headache, the glaucoma paroxysm may last only 12 or 24 hours, to return after several weeks or months. Usually, however, this terrible pain continues in unabated fury for several days, and this long duration and great violence should make any physician cautious not to regard the trouble a simple neuralgia until the most searching examination has failed to find a tangible cause and until he has especially satisfied himself that there is nothing wrong with the eye, even if the patient makes no complaint about his sight. For in the agonies of pain and with the sight of one eye perfect, the patient may not notice at all that the sight of the other eye has been rapidly failing since the beginning of the dreadful neuralgia, and that he may be scarcely able to distinguish light.

During the paroxysm of acute glaucoma the eye always shows great and characteristic changes; the upper lid is swollen; the palpebral conjunctiva œdematous, the sclera covered with engorged dark red veins; the cornea looks dull and smoky; the pupil is dilated and does not respond to the influence of light, and often shows a muddy, greenish color. The iris appears pushed forward toward the cornea, so that the depth of the anterior chamber is more or less reduced. The interior of the eyeball cannot be inspected by the ophthalmoscope because of the cloudy condition of cornea, aqueous humor and vitreous body, and most important symptom of all! the eyeball shows a very high tension; that is to say, when you place your finger gently upon the upper lid and slightly press down on the eye, you feel a much stronger resistance than

the normal eyeball offers. The intra-ocular tension has rendered the globe so hard that you imagine you are touching a solid marble, and not an eyeball.

The typical attack of glaucoma is usually preceded by slight disturbances, which, however, many patients pay little attention to and consider of no consequence. But a careful observer remembers that long before the glaucoma attack, he had noticed on some days his sight grew dim for several hours, and at the same time he felt a dull pain in the forehead and a fullness in the eye, and if he happened to look at a gas or lamp light, he saw a rainbow colored halo around the light. At first these premonitory signs of the approaching storm last but an hour or two, and reappear at long intervals, or perhaps on special occasions, (after great mental excitement, bodily exertion, too great indulgence in the pleasures of the table, etc.), but sooner or later they return at shorter intervals and remain longer, until finally the full attack breaks forth.

The duration of the glaucomatous attack has no limit; it may last but one day, or it may only abate in fury, but never let up entirely until the sight is thoroughly extinguished. When the attack subsides quickly, the sight soon returns, and the patient congratulates himself upon the happy result. But sooner or later he will have another attack which may not be so severe as the first one, but after which the sight does not return any more as completely as before. And after another pause there comes a third, and a fourth attack and so on, each one leaving the sight in a more impaired condition, until finally the last glimmer of perception is wiped out.

Or after the first outbreak of glaucoma the patient is never troubled with severe neuralgic pain; but the intra-ocular tension remains permanently increased, slowly but surely doing its destructive work upon the optic nerve fibres, achieving their complete atrophy and producing that peculiar excavation of the disc so characteristic of chronic glaucoma.

We distinguish three kinds of excavations of the optic disc: the physiological, atrophic, and glaucomatous one.

The *physiological excavation* is a funnel-like depression in the center of the disc: it varies greatly in extent but—and this is the very important feature—it never occupies the entire area of the disc: there is always a ring of nerve substance between the edge of the disc and the margin of the physiological excavation.

The *atrophic excavation* caused by tissue waste in the optic nerve, is a shallow depression extending over the whole disc, its surface gradually sloping down from the edge to the center.

The *glaucomatous excavation* also occupies the entire area of the disc, but it is steep, cup-shaped and much deeper than the atrophic excavation because the lamina cribrosa (which constitutes the bottom of the excavation) has been pushed backward by the continued high pressure upon it. This great and steep depth of the glaucomatous excavation produces a peculiar and very characteristic ophthalmoscopic picture: the floor of the sunken-in disc presents the pale, whitish, mottled appearance of the lamina cribrosa: the central retinal artery and vein do not appear to emerge from the center, but near the nasal border of the disc, and when the vessels reach the periphery of the disc they make a sudden sharpe curve upwards to ascend the side of the

excavation in order to get over the edge and into the plane of the retina. Where the excavation is very deep and the sides very steep, the bent of the blood vessels may be so sharp that the ascending piece is hidden from our view, and the vessels crossing the disc seem to have no direct connection with the vessels we see proceed from the edge of the disc. And when we move our head slightly while inspecting the glaucomatous disc we observe a distinct parallax displacement, the vessels on the disc appearing to move in the same direction with our head, while the vessels at the edge of the disc appear to move in the opposite direction. Moreover, we cannot see the bottom and the edge of the excavation distinctly at the same time; if we see the bottom plainly, the edge is indistinct, and if we adjust our sight for the edge, the details of the bottom become faded and hazy, because they are situated beyond the plane for which our sight is adjusted.

Whichever course glaucoma may pursue, absolute blindness is the inevitable final result, unless the disease is arrested by surgical interference. No medical treatment (local or general) can permanently stop the progress of glaucoma; but a properly executed iridectomy performed at the early stage, will stay the progress of the disease and save the sight. It was in 1856 when Dr. Graefe made known his great discovery, one of the grandest triumphs of modern surgery; and thousands upon thousands of men who would have been doomed to blindness for the rest of their lives, owe the preservation of their sight to the genius of Graefe.

The success of the iridectomy depends largely on the duration of the malady; in acute glaucoma especially it should be performed at the earliest moment; and you will, therefore, now realize that it is every physician's sacred duty to study the symptoms of glaucoma that he may recognize its presence and look for it as the possible cause of violent persistent sick headache, especially if this occurs in a patient beyond the age of 40; for glaucoma is a disease of advanced age, most frequent between the years of 50 and 70, and seldom found in a person under 40.

Gentlemen, I am just being reminded that the hour has expired. Let me then thank you for the close attention you have paid to my lectures. I have not dwelt upon the details of the treatment of these various eye troubles, because it would have been impossible to crowd so large a subject in the small compass of four lectures; and because I do not regard it the duty of the general practitioner to treat these ocular affections. His duty it is to know that they are often the cause of nervous disturbances; his duty it is to understand the symptoms of these ocular affections so that he is able to recognize their presence and to urge upon his patients the necessity of having his eyes attended to. His duty it is to look for these eye affections in all nervous troubles for which he cannot find any other satisfactory cause.

The task I had set before me in these lectures, was to make you acquainted with the principal types of these ocular affections; to explain how they affect the nervous system and to impress upon you the importance and necessity of their treatment.

Let me hope that I have succeeded in my endeavors. Let me hope these lectures will help you to solve many perplexing problems in your practice, and to bring relief where you vainly had exhausted

your medical skill before. And if then you feel that these hours in the Chicago Polyclinic were well spent for the knowledge you received, let me hope you will also kindly remember him who has given you this information.

A SIMPLE TOURNIQUET CLASP.

Read before the Philadelphia Academy of Surgery, January 9, 1893.

BY H. AUGUSTUS WILSON M.D.,

CLINICAL PROFESSOR OF ORTHOPEDIC SURGERY, AT THE JEFFERSON MEDICAL COLLEGE, PHILADELPHIA.



It must be evident to everyone who has occasion to use the elastic tourniquet and Esmarch's bandage, that the simplest form of all methods of fastening it, when applied, is either not known, not efficacious, or possesses other disadvantages. The method referred to, is to pass the loop of rubber bandage underneath one of the last turns as it is applied, which by contraction holds the end in place. The rubber tourniquet, as sold by the shops in this coun-



try, is always provided with a chain, of about six or eight inches in length, for the purpose of holding the end of the bandage and keeping it from slipping. The use of this chain necessitates the application of the entire length of the bandage whether it is required or not. It was in order to dispense with this chain that I advised the simple form of clasp that is shown in the accompanying illustration. Messrs. E. A. Yarnall & Co., surgical instrument makers, in this city, have made the clasp, following my directions. It consists of a simple letter S made out of one-eighth inch German silver wire, and is so simple in its construction that any one can twist a piece of wire into the necessary shape, as I did with the original design. The manner of using the clasp is so

clearly shown in the cut that a description is not at all necessary. Its advantages are, simplicity of construction and use; that the tourniquet may be clasped at any point; that while in use it cannot slip, and that the tourniquet may be unclasped with the greatest ease. It would appear that there was some necessity for a form of clasp of this nature, in view of the extensive advertisements in English medical journals of a *patented* appliance of very much more elaborate construction and therefore quite expensive. Continued trials of this simple clasp, when used with ordinary elastic rubber tubing, have shown that it was all that was required for the purpose, and it is hereby given to the profession, with the hope that it may tend to displace more cumbersome and unsatisfactory methods of accomplishing the same end.

PNEUMONIC FEVER—ITS SYMPTOMOLOGY.

BY EDWARD F. WELLS, M.D.,

OF CHICAGO.

FEVER.

Very early in the attack, during the chill if it is present, other important symptoms arise. Thus in almost every case the body heat is elevated above the normal and so remains until the advent of convalescence, when for a few days, it often falls below the standard of health, after which it regains its proper equilibrium.

The curve of elevated temperature usually ascends abruptly during the first few hours, and in some cases speedily reaches a great height,¹ as shown in the following table:

TABLE I.—SHOWING RISE OF TEMPERATURE EARLY IN THE ATTACK.—UNSELECTED CASES.

Age.	Hours After Access.	Temp.	Age.	Hours After Access.	Temp.
60	2	99.0	8	11	102.0
77	1	97.0	5	8	102.0
27	1	99.0	4	4	102.0
47	2	99.2	7	9	102.1
72	12	99.6	48	6	102.1
39	12	99.7	11	9	102.1
19	1	99.8	24	1	102.2
19	1	99.9	11	4	102.2
39	5	100.0	20	6	102.4
35	11	100.0	1	1	102.5
7	9	100.0	19	10	102.5
81	7	101.0	8	7	102.7
40	15	101.0	18	6	103.0
12	10	101.0	4	6	103.7
45	1	101.2	3	3	103.8
6	10	101.5	29	11	103.9
8	8	101.4	1	14	104.0
7	1	101.4	46	8	104.0
15	10	101.5	18	6	104.0
11	11	101.5	17	7	104.1
11	11	101.5	13	3	104.1
28	7	101.5	13	2	104.2
36	6	101.7	10	10	104.2
27	10	101.8	17	8	104.8
10	10	102.0	23	7	104.8
4	11	102.0	24	7	104.8
40	7	102.0	16	8	104.2
46	7	102.0	10	8	104.2
11	6	102.0	88	11	104.2
18	1	102.0	19	11	104.2

Baginsky² observed a temperature of 104.2° in a child two hours after the initial chill. Fox³ has known of a case in which the thermometer marked a temperature of 105° within a few hours after the first sensations of illness. In a

¹ The remarkable rapidity with which the fever is recognized and recognized by Alexander, of Tralles. See *Opera Omnia*, p. 170, 171, so early as the sixth century.

See also Grisham, *Dillon Jour. Med. Sci.*, May, 1889, p. 100. Croupous Pneumonia, W. 170, 1890, p. 8. — Le. J. C. Ber. *Arch. Wochenschr.*, Sept. 4, 1881; Smith, *Phil. Med. News*, Jan. 1, 1889, p. 24. — Ott, *N. Y. Med. Jour.*, July 13, 1889, p. 2. — Louis, *Op. Pleuritis*, best ed. 1871, p. 190. — Pepper, *Med. News*, July 6, 1890.

² *Pneumonie et Pleuritis*, p. 117, 1889, p. 1.

³ *Reynold's Syst. Med.*, Phila., 1889, vol. 11, p. 17.

series of five cases given by Juergensen¹ temperatures of 101.1, 101.7, 105.8, 104.4, and 104.4 was observed 2³, 4, 4, 7 and 8 hours respectively, after the access of the disease. Monthius² in one case found the temperature, during the chill 100.9; fifteen minutes later 102.7, and at the end of an hour 105.8. In one of Pepper's cases the temperature reached 105 within an hour of the initial chill.³ Scheef⁴ saw temperatures of 101, 104.6, 103.8, 104.6 and 105.6 at 4, 3, 1 and 6 hours, respectively, after the onset of the symptoms. Thomas⁵ in two adults marked temperatures of 104.9 and 105, nine and twenty-three hours respectively, after the beginning of the attack. Ziemssen⁶ observed a temperature of 102.5, in a child four hours after the beginning of the attack; and temperatures of 103.5 and 104, respectively, in two children twelve hours after the initial symptoms.⁷

Ever since the comparatively recent reintroduction of the thermometer into practical medicine¹¹ it has been the desire of physicians to make it a certain guide, a veritable mariner's compass in the diagnosis, prognosis and treatment of diseases,¹² and charts have been constructed showing what their authors are pleased to term the "normal temperature curve" of various maladies. Pneumonic fever has not escaped attempts at being made to fit one of these charts. My observations have convinced me that such generalizations have usually been deduced from insufficient and unreliable data, and that the deviations from the average are so numerous and wide as to render such charts misleading. Let us here pause to hear what a few of the systematic writers have to say on this subject:—

Aitkin,⁸ states that the diagnosis may be established by the range of temperature alone, and that a patient exhibiting the general typical symptoms of pneumonic fever, but with a temperature not ranging above 101.7° may be safely considered as having his lungs free from inflammatory exudate.

Flint⁹ says that "the thermometer in the axilla indicates more or less increase of heat, the increase, in mild cases, not exceeding 104°."

Fox¹⁰ says "one of the most marked features of pneumonia, which is almost sufficient to distinguish it from other diseases, is the sudden and considerable rise of temperature which marks its invasion and which, with some exceptions, is then maintained, with slight morning remissions and evening exacerbations throughout its course until crisis occurs. The rise of temperature during the rigor is common to most diseases but its subsequent maintainance at a very high standard during the succeeding first hours and days is limited to a small class of inflammatory affections."

Green¹⁶ says that the thermometer will range from 102° to 105°, being lowest at about 8 A.M., and highest in the early evening.

Holt¹⁵ says that "the temperature fluctuates slightly during the day, being 102° to 103° in the morning and 104° in the evening, until the sixth or seventh day, sometimes not until the tenth, when it suddenly falls to or near the normal."

Juergensen¹ says that the temperature speedily rises to 102° or 103° and remains so, with morning remissions, and evening exacerbations of from 1.8° 2.7°, to rapidly sink to the normal at the termination of the fever.

Schuyler¹⁹ says that the temperature rises suddenly to the maximum shortly after the onset of the malady, is maintained at a high level during the course and rapidly falls to a degree or more below the normal at defervescence.

Sturges²⁰ repudiates ready-made charts, but says that there is high temperature at the beginning and to the end of the first week, with but slight morning remissions and liable to sudden elevations. He says, with much truth that this, nor any other isolated symptom can be trusted as a measure of the gravity of the disease,²¹ as a temperature of even 107° may be met with in successful cases.²²

Trousseau²³ says that the temperature quickly rises after the chill to 102° and continues at this point, with slight oscillations, until the crisis, when it falls rapidly to, or below the normal.

Waters²⁴ says that the temperature rarely rises above 106°. In a series of 106 cases the temperature only once reached 106°, and in only a small proportion did it pass beyond 105°. The general course is a very definite one—a high temperature is maintained for some time, a so-called crisis comes and there is rapid defervescence.

Wunderlich²⁵ would call all cases severe in which the temperature ascends beyond 104°.

Ziemssen²⁶ speaking of the disease in children, says that the temperature ascends rapidly and remains at its acme, about 104°, until the crisis, when it falls to or below the normal, remaining so for several days. The highest and lowest temperatures met with by him were 106.7° and 97.1° respectively.

It will be seen from the above selections that writers generally have believed that in this disease the temperature runs a very definite course. This, however, is by no means the rule; neither can the conscientious observer make one case in ten fit the ready made charts as prepared by some systematic writers. I have the records of the temperature of several hundred cases of this disease, collected from the published writings of others, in addition to my own 498 cases, and a study of these show in a graphic manner the shifting sands forming the foundations upon which, after too hasty generalization, has been erected the superstructure of thermometry in pneumonic fever. Take the temperature of any large number of cases and represent them graphically in charts and any unprejudiced observer must acknowledge that he has before him a trackless wilderness of unmeaning lines.²⁷

In view of these facts we can say that, in general, the corporeal heat is elevated from two to five degrees, Fahr., above the normal, continues so for about six days, and falls rapidly to or below the standard of health. That in a few cases the temperature attains a great height and in yet a few others it is but little or not at all exalted and may even be subnormal throughout the attack. Finally that there are so many exceptions to these rules that it were well to ignore them altogether.

The temperature, corresponding with the normal diurnal variations, is usually higher in the evening than in the morning.²⁸

As a general rule the severity and dangerous tendencies of the case may be measured, in part, by the height of the temperature, and, by common consent, the 104th

¹ Ziemssen's Handb., Bd. v. S. 71.

² These de Paris, 1868.

³ Med. News, July 1, 1790.

⁴ Lang, Dissert., Tübingen, 1882, S. 33.

⁵ Arch. d. Heilk., Bd. v. 1861, S. 31.

⁶ Pleuritis u. Pneumonie, Berlin, 1862, S. 202.

⁷ See also Zimmermann, Prager Vierteljahrsschr., 1852, Bd. xxxv, S. 197, and many others.

⁸ Chiefly through the efforts of Compton, Dublin Jour. Med. Sci., vol. iii.—Grimsbaw, Ibid., 1860.—Bärensprung, Müller's Archiv, 1851-2.—MacLagan, Edinb. Med. Jour., 1809.—Parker, Med. Times and Gaz., 1886.—Thomas, Arch. d. Heilk., 1884-65.—Traube, Ann. d. Charité, Bd. 1.—Waters, St. Bartholomew's Hosp. Rpts., vol. ii.—Wunderlich, Das Verhältniss d. Eigewärme in Krankheiten, Arch. & Phys. Heilk., Bd. xv, S. 19.—Ziemssen, Op. cit.—Zimmermann, Prager Vierteljahrsschr., 1852, and others.

⁹ It appears that Sanctörus first had the idea of measuring the temperature of the body in disease by the thermometer at the end of the sixteenth, or early in the seventeenth century. Bäumler, Quain's Dic. Med. N.Y., 1883, p. 1615.—Cleghorn, Epidem. Dis. Minorica, London, 1762;—was the first, so far as my information extends, to make use of this instrument in investigating pneumonic fever, in 1743. Donnè, Arch. Gén. de Méd., 1857, and Roger, Ibid., T. vi., made observations upon the temperature in this disease previous to 1810.

¹⁰ Science and Practice of Medicine, 2nd ed., London, vol. i, p. 50.

¹¹ Prac. Med. Phila., 1868, p. 177.

¹² Reynold's Syst. Med., Phila., 1880, vol. ii, p. 176.

¹³ Quain's Dic. Med., N.Y., 1883, p. 77.

¹⁴ N. Y. Med. Rec., Feb. 11, 1885, p. 174.

¹⁵ Ziemssen's Handb., Bd. v. 1877, S. 70.

¹⁶ N. Y. Med. Jour., Aug. 25, 1883, p. 206.

¹⁷ Nat. Hist. Pneumonia, London, 1876, p. 251.

¹⁸ See p. 42.

¹⁹ See p. 41.

²⁰ Clin. Med., Phila., 1873, vol. i, p. 664.

²¹ Brit. Med. Jour., Dec. 20, 1879, p. 978.

²² Op. cit.

²³ Op. cit., S. 202, n. 211.

²⁴ See also Wells, Clin. Lan. and Clin., June 10, 1882.

²⁵ See also Bärensprung, Müller's Archiv, 1851, S. 160, u. 1852, S. 251;—Cleghorn, Epidem. Dis. Minorica, London, 1762, and others.

degree is considered the dividing line between the mild and moderately severe cases and those which are very severe and dangerous.²⁹ In my own practice I have met with several cases with a temperature of more than 101°, yet recovery ensued in the majority, and in some of these no alarming symptoms whatever were noticed. In many of the fatal cases the thermometer at no time indicated a very exalted corporeal heat, and in some instances death was preceded by a subnormal temperature. Generally, however, death was anticipated by a great elevation of the temperature. The highest temperature recorded in my case-book is 108°, noticed in an aged lady an hour before death.³⁰ The lowest axillary temperature met with was 94°, in several cases—fatal and non-fatal. A gradual and persistent rise of temperature after the fourth day has generally portended a very grave or fatal case. In my cases the average temperature at the height of the disease has been much lower than I was led to expect from the statements of the text-books.

In children the temperature usually ranges higher than in adults; attaining, in most cases, a height of from 102° to 105°. The rise at the beginning and the fall at the close of the attack are usually remarkably abrupt. In senile cases the temperature curve is somewhat lower than in adults, although some of the highest markings I have made were in such patients. In males the temperature is said³¹ to be slightly above that of females, but this is not proven by my records. Juergensen³² says that in the case of females about menstruating, the temperature is apt to be quite high until the flow is established, after which it usually declines very considerably. This statement is in accord with my own observations. Many writers affirm that the portion of lung affected exerts a considerable influence over the temperature curve, it being higher when the localization is in the upper lobes than when the lower parts are involved, but my experience does not confirm this opinion.

Shortly before death the temperature often rises to a great height³³—108.9°, 109.4°, 110.6°—and continues to rise to a slight extent post mortem.³⁷

As convalescence approaches the temperature often pursues a peculiar course. Instead of there being a morning remission, the temperature will probably remain high, with considerable perturbation of the general system. In the evening, however, the body-heat begins to fall rapidly until it reaches the normal, or a sub-normal point, in the course of a few hours. In some cases the fall of temperature is very gradual and prolonged,³⁴ occasionally one to three

weeks being occupied in the de-escalence. The physical signs disappearing equally slowly.

When de-escalence is very rapid³⁵ the temperature commonly descends to below the normal. This occurred in more than 60 per cent. of my cases. It usually begins to fall during the first week, and this is generally coincident with improvement of other important symptoms and the beginning of convalescence.

Of my cases the fall of temperature began before the third day in 5 per cent.,³⁶ during the third day 10 per cent., during the fourth day 15 per cent., during the fifth day in 20 per cent.; during the sixth day in 20 per cent.; during the seventh day in 10 per cent.; during the eighth day in 10 per cent.; during the ninth day in 5 per cent., and after the ninth day in 5 per cent.³⁷ It usually began in the evening after a most promising morning.

A sudden fall of the temperature without any amelioration of the general symptoms is often³⁸—but not always—of evil import.³⁹

It has long been an interesting question as to what were the limits of corporeal temperature above and below the physiological zero endurable by the human body without causing death. That a rise or fall of a few degrees is injurious to the system has been almost universally accepted, and probably upon insufficient grounds.

The death lines of Uhle,⁴⁰ 106.1°; Goodhart,⁴¹ 107°; Fiedler⁴² and Wunderlich,⁴³ 107.6°; Liebermeister,⁴⁴ 108°; Richet,⁴⁵ 109.4°; Baümler,⁴⁶ 110°; Anderson,⁴⁷ and Barnard,⁴⁸ 111.2°; Dalton,⁴⁹ 113°, and others have been so often transgressed with impunity that these arbitrary limits are by no means so significant as their respective authors would have us believe. To show to what extent "hyperpyrexia" has been recovered from I have constructed Table II.

In the face of the above facts is it not putting the point to great tension to say that a high temperature is, *per se*, a cause of death? And if death does come in the wake of an exceptionally elevated corporeal heat, as is no doubt very frequently the case, does it always and necessarily follow that the event is directly due to the hyperpyrexia? May there not be other factors involved upon which depend both the excessive temperature and the fatal issue?

Sturges,⁵⁰ speaking of this says, and I think truly, that "it happens in fatal cases of pneumonia with exceptionally high temperature, that death reveals a condition of the lung absolutely irrecoverable; the high temperature is but the index of a condition which must under any circumstances have ended in death. For myself, I do not know of any case of pneumonia dying with such exceptional temperature that could be said to die of it, that from the state of the lung must not have died anyhow."

ninth and tenth days—it was 99°, 99° and 98.4° respectively. On the eleventh day it was 100°, and between this and the fourteenth day it ranged from 100° to 101°, after which there was a gradual decline to the normal on the thirty-fifth day. The physical signs continued to the sixtieth day.

²⁹ In one of my cases the temperature fell 10 degrees in forty-eight hours, and Ziemessen records a case in which the decline was 60° in sixty hours.

³⁰ In round numbers, approximately.

³¹ Of Hermann's.—Lungenentzündung, 1880, S. 33.—43 cases the temperature began to fall on the first day in 2, on the second day in 8, on the third day in 11, on the fourth day in 11, on the fifth day in 5, on the sixth day in 1, on the seventh day in 3, on the eighth day in 1, and on the eleventh day in 1. In seven of these the fall began in the morning at 10, thirty-six in the evening. For further information see Sauter, Inaug. Dissert., Breslau, 1881, S. 17; Scheef, Inaug. Dissert., Tübingen, 1882, S. 32; Stortz, Inaug. Dissert., Würzburg, 1884, S. 57.

³² See also Fothergill, St. Louis Med. Brief, May, 1886, p. 178.

³³ Nickles, Cincinnati Lun. and Clin., July 26, 1875, p. 33.

³⁴ Guy's Hosp. Reports, 1870.

³⁵ Deutsche Arch. f. k. Med., Pd. I, S. 541.

³⁶ Thermometry, London, 1871, p. 92.

³⁷ Volkmann's k. Vorträge, Nr. 31, S. 240, Op. cit., p. 130.

³⁸ Jour. des scs. sci., No. 207, 1888.

³⁹ London Lancet, 1887, vol. ii, p. 886.

⁴⁰ Kinsman, Ohio Med. Recorder, Jan., 1881, p. 330.

⁴¹ Physiology, Philadelphia, 1875, p. 312.

⁴² In some cases there is a subsequent rise of temperature, after it has fallen and only or gradually to the normal. See also Koettwitz, Inaug. Dissert., Halle, 1882, S. 77; Sauter, Inaug. Dissert., Breslau, 1881, S. 17.

⁴³ Pneumonia, London, 1875, p. 218.

²⁹ See also Fenwick, Lancet, 1891, vol. i, p. 248;—Lépine, Pneumonie, Wien, 1888, S. 164;—Welch, N. Y. Med. Rec., April 15, 1888, p. 103;—Wunderlich, Op. cit., and others.

³⁰ The highest temperature observed by Benson,—Cin. Lan. and Clin., Sept. 21, 1889, p. 320,—was 107°, shortly before death;—by Satterwaite, Phila. Med. News, Jan. 5, 1889, p. 5, 108°, at death;—by Katzenbach, N. Y. Med. Jour., June 6, 1891, 108.9° fifteen minutes before death, and by Wunderlich, Inaug. Dissert., Tübingen, 1858, S. 27, 108.4°—two hours before death. One case is reported,—Med. and Surg. Rep., Oct. 3, 1886, p. 536,—in which the temperature reached 110.4° an hour before death.

³¹ Hough, Phila. Med. Times, Nov., S. 1873.

³² Ziemessen's Handb., Bd. v, 1877, S. 72.

³³ In one of my cases 108° was reached.

³⁴ Fox, Op. cit., p. 177, also Loney, N. Y. Med. Record, June 16, 1888.

³⁵ Thomas, Arch. d. Heilk., 1865, S. 329.

³⁶ Doubleday, N. Y. Med. Record, March 28, 1885, p. 333.

³⁷ Lebert,—Berliner k. Wochenschr., Sept. 4, 1871,—says that in the majority of cases the range of temperature is favorable until asphyxia or collapse announce the end. This has very seldom occurred in my experience—in almost every fatal case remarkable thermometric changes were noticed for some time before death.

³⁸ Several such cases are in my collection, but the point is illustrated by the one reported by Fox,—Reynold's Syst. Med., vol. 11, p. 179. A boy, aged 15, of good general health, became chilled and had a rigor on the following morning, with the development of pneumonic fever, locally affecting the lower lobe of the right lung. Severe gastric catarrh was a complication. On the fourth day the temperature was 105°. On the eighth,

TABLE II. SHOWING RECOVERIES FROM HYPERPYREXIA.

Degrees Temp.	Disease.	Reference.
107	Pneumonic fever	Fox, Reynold's Syst. Med., vol. ii, p. 157.
107	"	Bennett, N. A. Pract., vol. i, p. 206.
107	"	Kocher, Pneumonie, Warzbu, 1866.
107	"	Pepper, N. Y. Med. Rec., June 11, 1887, p. 666.
107	Rheumatism	Bond, Lond. Lancet, 1887, vol. ii, p. 337.
107	"	Barron, Lond. Lancet, 1880, vol. i, p. 1173.
107	"	Fox, Hyperpyrexia, p. 10.
107	"	Gall, Lond. Lancet, 1872, vol. ii, p. 562.
107	Seizures	London Lancet, N. Y., 1882, vol. ii, p. 118.
107	Stroke, 2 cases	Ellis, N. Y. Med. Rec., Aug. 11, 1888, p. 148.
107	Melancholia	Ellis, Lond. Lancet, Nov. 23, 1878, p. 148.
107	Sewer-gas poisoning	Levy, N. Y. Med. Jour., Dec. 11, 1880, p. 607.
107	Laparotomy	Rutbeck, Jour. Am. Med. Ass., Dec. 3, 1887.
107	After effluement	Krisso, Lancet, March 7, 1891.
107.2	Artificial	Krishna, Gaz. Med. de Paris, 1877.
107	Rheumatism	Sisson, Reynold's Syst. Med., vol. ii, p. 517.
107	Pneumonic fever	Jaesch, Physiol. and Surg. Jour., Jan. 1881.
107	Typhoid fever	Smyth, Clin. Lancet and Clinic, 1882, p. 255.
107	Rheumatism	Racon, quoted by Sturgis, Op. cit., p. 24.
107	"	Greene, Lancet, 1887, vol. ii, p. 254.
107	"	Zinke, Jour. Am. Med. Ass., Nov. 13, 1886.
107.5	Pneumonic fever	Jurgens, Op. cit., p. 72.
107.5	"	Lebert, Berliner k. Wochenschr., 1871.
107.8	Rheumatism	Ringer, Med. Times & Gaz., 67, vol. ii, p. 480.
107.8	"	Sisson, Op. cit., p. 18.
107.8	"	Symes, Trans. Acad. Sci., Ireland, 1886.
108	Stroke	London Lancet, N. Y., 1882, vol. ii, p. 148.
108	"	Ellis, N. Y. Med. Rec., Aug. 11, 1888, p. 148.
108	Hysteria	O'Dwyer, Lond. Lancet, 1881, vol. ii, p. 141.
108	Pneumonic fever	Smith, Quoted by Kinsman, Op. cit., p. 357.
108	Ovarialgia	Samsbury, Lond. Lancet, 1890, vol. i, p. 1171.
108	Relapsing fever	Donkin, Lond. Lancet, Nov. 23, 1878.
108	No diagnosis, 2 cases	Fox, Brit. Med. Jour., March 30, 1872.
108.1	Stroke	Donkin, Op. cit.
108.2	Typhoid fever	Mason, Boston Med. & Surg. Jour., Mar. 20, 1879.
108.2	Rheumatism	Karlulis, London Lancet, April 26, 1879.
108.2	"	Andrew, St. Barth. Hosp. Rpts., vol. p. 338.
108.2	"	Fox, Hyperpyrexia, p. 2.
108.5	"	Weber, Trans. Clin. Soc., vol. v, p. 186.
108.5	Puerperal condition	Torr, Boston Med. & Surg. Jour., Apr. 21, 1876.
108.6	Rheumatism	Dalby, Lond. Lancet, 1887, vol. ii, p. 251.
108.6	Stroke	Ellis, N. Y. Med. Rec., Aug. 11, 1888, p. 148.
108.6	"	Ellis, N. Y. Med. Jour., Sept. 12, 1891, p. 288.
108.8	Ovariotomy	Fenger, Jour. Gynecol., Sept., 1891, p. 391.
109	Stroke	O'Dwyer, Op. cit., p. 141.
109	"	Cincinnati Lancet & Clinic, Oct. 5, 1878, p. 252-3.
109	"	Burrall, N. Y. Med. Rec., Nov. 24, '83, p. 608.
109	"	Ellis, N. Y. Med. Rec., Sept. 11, 1889, p. 287.
109	De-iri in tremens	Anstie, Brit. Med. Jour., March 30, 1872.
109.2	Stroke	Mason, Op. cit., p. 107.
109.2	"	Abbott, Boston Med. & Surg. Jour., July, '78.
109.4	Hysteria	Wunderlich, Arch. d. Heilk., Bd. cxxx.
109.5	Typhoid fever	Stewart, Brit. Med. Jour., March 30, 1872.
109.5	Pneumonic fever	Carson, Cincinnati Clinic, April 26, 1873, p. 165.
109.6	Typhoid fever	Shattuck, Boston Med. & Surg. Jour., July 10, 1879, p. 61.
109.8	Rheumatism	Carrington, N. Y. Med. Rec., Apr. 2, '87, p. 230.
110	"	Lancet, N. Y., 1882, vol. ii, p. 118.
110	cerebral	Da Costa, Ann. Jour. Med. Sci., Jan., 1875.
110	Intermittent fever	Macintosh, Brit. Med. Jour., Dec. 20, 1879, p. 978.
110	Stroke	Ellis, Op. cit., p. 118.
110.5	"	Yule, N. Y. Med. Jour., Nov., 1874, p. 163.
111	"	Penbody, N. Y. Med. Rec., Feb. 27, '80, p. 251.
111	Ovaritis	Tait, Lancet, 1881, vol. ii, p. 39.
111	Ovariotomy	Tait, Ibid., p. 39.
111	Hysteria	Clenow, Lancet, 1887, vol. ii, p. 1112.
111	Spinal injury	Brodie, Brit. Med. Jour., Dec. 29, '79, p. 978.
111	Typhoid fever, 2 cases	Donkin, Lancet, March 15, 1879.
111.6	"	Donkin, Op. cit.
112	Scarletina	Church, Med. World, 1886, p. 212.
112	Synovitis	Donkin, Op. cit.
112	Pul. stump	Donkin, Op. cit.
112.8	Pneumonic fever	Lorentzen, Ger. Arch., f. k. Med., Aug. 17, '89.
113	Stroke	Parkes, Chic. Med. Jour. & Ex., 78, vol. ii, p. 321.
113	Pneumonic fever	Donkin, Op. cit.
113	Hypertysis	Lorentzen, Lond. Lancet, 1889, vol. ii, p. 805.
113.8	Intermittent fever	MacKenzie, Brit. Med. Jour., Feb. 13, 1892.
114	No diagnosis, 2 cases	Ormerod, Lancet, Nov. 9, 1878.
114	Hysteria	Ormerod, Ibid.
114	Abdominal pain	Donkin, Op. cit.
114	Neuritis	Kirsmann, Ohio Med. Recorder, 1881, p. 357.
117	"	Ormerod, Op. cit.
120.8	Abdominal pain	MacKenzie, Lond. Lancet, Nov. 9, 1881.
125	Spinal injury	Tait, Lond. Lancet, March 6, 1875.
125.5	Nostril	Brit. Med. Times & Gaz., 1880.
128	Phthisis	Macdonald, Lond. Lancet, N. Y., 1882, vol. i, p. 35.
133	Nostril	L. T. E. Lond. Lancet, N. Y., 1882, vol. i, p. 70.

* No attempt has been made to make this table complete as to the published cases.

Other writers are also of the opinion that a high temperature is not in itself dangerous, and is not certainly prognostic of a fatal issue.¹ Thus Ziemssen² says, that "there is no doubt as to the dangers of hyperpyrexia, but it seems that the high temperature has usually not the significance which Liebermeister at first attributed to it. The severe cerebral symptoms, the cardiac degeneration, renal trouble,

the trophic disturbances do not seem to be the effects of the high temperature, but effects of the dangerous process, the infection causing the fever." Welsh³ says: "There is no doubt that temperatures of 110° to 113° produce serious symptoms, but whether or not ordinary temperatures of 105° to 107° exert any serious action on the body, is a question which is certainly unsettled. It has been shown that rabbits can be kept in a box, with a continuous rectal temperature of 107° for at least two weeks, provided the precaution is taken to keep the box well ventilated and the animals well supplied with moist food. Patients may have a perfectly clear brain and no grave symptoms with a temperature of 106° or 107°."

Opposite views are held by others.⁴ Thus Lynch⁵ says: "As I grow older and my experience enlarges I become more and more convinced that fever is the lethal agent which destroys life in almost every disease in which that functional derangement is present."

In this connection the question arises whether a high temperature may not be salutary, by destroying or preventing the multiplication of the germs of the disease.⁶ This opinion has been advanced,⁶ but with our present knowledge I cannot accept it.

Physicians generally have been so absorbed in recording temperatures above the normal that but little attention has been given to the markings of the thermometer below the physiological zero. It is no less true, however, that occasionally cases of various acute diseases, and especially pneumonic fever, run their course with a temperature curve below that of health.⁶ This fact is not usually mentioned, and, although not unknown, its importance is not always fully appreciated.

Doubleday,⁷ in analyzing 251 cases of this disease, found that in three the temperature was sub-normal—in one as low as 92.4°. Fox⁸ says: "Such cases must be extremely rare, and require data as to the day of the disease upon which they came under observation. The majority of cases in hospital practice are rarely admitted before the third day, and it must be remembered that even at this early period the temperature may in some cases fall from a pyrexial height to the normal standard. I have never seen a case of pneumonia unattended with pyrexia free from this suspicion." Schuyler⁹ says "that the entire process of acute lobar pneumonia may occur without fever," and in another place¹⁰ he records a case of this kind:—A German, aged 24, a grocer's clerk, whose duties led to early morning exposure whilst insufficiently clad, and who had not been strong for some weeks was, without chill, thirst or heat, attacked with pneumonic fever, characterized by prostration, anorexia, rusty sputa and scanty urine. When seen on the second day, the temperature was 97°, rising, three days later, to the normal, but at no time transcending the latter point.

I have met with several cases in my practice in which the temperature was normal or sub-normal.

A lady, aged 31, was suddenly attacked, at 1 p.m., Dec. 10, 1882, by a very severe lancinating pain in the region of the right nipple, followed in a few minutes by a profound chill and rigors. In due season all the ordinary signs and symptoms of pneumonic fever, locally affecting the lower lobe of the right lung, appeared. Convalescence was declared on the fourth day and a speedy recovery ensued. The highest tem-

¹ N. Y. Med. Jour., June 11, 1887, p. 656.

² Baginsky, Op. cit., 8, 35.—Kettliche, M. Epine, Pneumonie, Wien, 1881, S. 55.—Jurgens, Op. cit.,—Ringer, Med. Times & Gaz., March 12, 1877.—Yule, N. Y. Med. Jour., Nov. 1874, p. 155.—Lebert, Berliner k. Wochenschr., Sept. 4, 1871.—et al.

³ Jour. Am. Med. Assoc., June 18, 1887, p. 673.

⁴ See Finkler, Therap. Gaz., Dec., 1886, p. 810.

⁵ Fagge, Prin. and Prac. Med., Vol. I, p. 40.

⁶ Anderson, Clin. Lan. and Clin., Oct. 2, 1889.—Brothier, Jour. de méd. et de chir. prat., 1881.—(inclinati Lancet and Clinic, Oct. 12, 1878, p. 269.—Cleghor, J. Ep. Dis. Minor, p. 261.—Doubleday, N. Y. Med. Rec., Mar. 28, 1885.—K. N. Y. Med. Rec., Feb. 7, 1885, p. 97.—Gallup, Epidem. et Vit., Boston, 1871.—Jolly, Clin. Lan. and Clin., Oct. 2, 1889.—Lee, Cor. Land's Med. Dic., N. Y., 1875, Vol. ii.—Epine, Pneumonie, Wien, 1881, S. 163.—Powell, Lond. Lancet, 1887, Vol. ii, p. 1222.—R. N. Y. Med. Rec., Feb. 14, 1885, p. 188.—Schuyler, N. Y. Med. Jour., Sept. 8, 1883, p. 27.—Stickler, N. Y. Med. Rec., Jan. 26, 1884, p. 55.—Suckling, Lancet, 1886, Vol. I.—Waller, Inaug. Diss., Erlangen, 1877, S. 1.—Wells, Clin. Lan. and Clin., June 10, 1882.—Wunderlich, Handb. d. Spec. Path.,—et al.

⁷ N. Y. Med. Rec., March 28, 1885, p. 343.

⁸ Reynold's Syst. Med., Phila., 1880, Vol. II, p. 176.

⁹ N. Y. Med. Jour., May 11, 1887, p. 512.

¹⁰ Ibid., Sept. 8, 1883, p. 257.

¹ L. N. Y. Med. Rec., Feb. 11, 1888.—Money, Ibid.,—July 10, 1883, p. 51.—North, Wiener med. Wochenschr., Nr. 48, 1884.—Riegel, Ger. Arch. f. k. Med., 1884, Nov. 10.—Schuyler, N. Y. Med. Jour., May 11, 1887, p. 512.—Smith, N. Y. Med. Rec., Feb. 27, '86, p. 257.—Minor, N. Y. Med. Rec., June 11, 1887.

² Jour. Am. Med. Assoc., May 11, 1887, p. 512.

eratures noted were 99° , 98.6° , and 96° on the second, third and fourth days respectively.

A lady, 44 years of age, was suddenly attacked, at 5 p.m., Nov. 15, 1878, with a severe chill, followed by the ordinary symptoms of pneumonic fever. The entire left lung became consolidated and convalescence was not assured before the eighth day. The highest temperature recorded on each day was: second day, 98.2° ; third day, 98.6° ; fourth day, 98° ; fifth day, 98.7° ; sixth day, 98° ; seventh day, 98° , and eighth day, 97.6° .

A robust young man, aged 23, was suddenly attacked by a light chill at 3 a.m., May 7, 1881, followed by the usual symptoms and signs of pneumonic fever, locally affecting the lower lobe of the right lung. Convalescence was declared on the fourth day. The temperature was, first day, 99° ; second day, 98.5° ; third day, 98.4° , and fourth day 98.1° .

In another series of cases the temperature was considerably elevated in the beginning but quickly fell to, or below the normal, without improvement in other symptoms.

A young lady, a deaf mute, aged 24, was taken suddenly with a profound chill at 5 a.m., Jan. 29, 1875. The ordinary symptoms of a severe attack of pneumonic fever followed. Headache, sleeplessness, and delirium were prominent symptoms. The upper lobe of the left lung was the part locally affected. Convalescence was declared on the seventh day. The highest temperatures noted were, on the second day 100° ; on the third day, 99° ; on the fourth day, 98° ; on the fifth, sixth and seventh days, 98° .

In yet another series the course of the disease was apyrexial, except on one or two occasions when, for a short time the temperature was elevated.

A widow, aged 60, had had pain in the left side, cough and diarrhoea for a week, when, on April 25, 1881, at 3 p.m., she felt chilly and ill and took her bed. I saw her two hours later. There was noticeable dullness over the lower lobe of the left lung, posteriorly, and in this situation crepitant râles were heard. There was a severe cough, with pain in the left side and a scanty, viscid, white, translucent expectoration. The appetite was lost and thirst slight. She had vomited once and had a dysenteric diarrhoea. As time passed the expectoration became in turn free, hæmorrhagic, dark, scanty and suppressed. The vomiting continued, the tongue became dry, sordes formed on the teeth and lips and the diarrhoea became frequent, aerid and involuntary. The urine became scanty, was passed involuntary, and finally retained. Her mind, at first acute, became dulled and delirious, and from wakefulness she passed into drowsiness, stupor and coma. Respiration became more and more frequent and embarrassed and she died at 5 a.m., on the fourteenth day. The temperature was on the first day, 96° ; second day, 98.5° ; third day, 100.6° ; fourth day, 99° ; fifth day, 98° ; sixth day, 98.1° ; seventh and eighth days, 99° ; ninth day, 98.2° ; tenth and eleventh days, 99° ; twelfth day, 101.5° ; thirteenth day, 101° , and fourteenth day, 101.5° .

In a considerable number of cases the local peripheral temperature was studied, but with, to me, unsatisfactory results. In a large number of cases the affected side was warmer, sometimes remarkably so,⁶⁷ than the healthy one, yet in a very considerable number but little, if any, difference could be detected between the two sides,⁶⁸ and in some cases the surface temperature was highest on the healthy side.⁶⁹

Jonas and Benezur⁷⁰ say that a decided difference in the surface temperature may be noticed by the hand over solid

organs—liver, heart, spleen, etc., and the lungs, it being highest over the latter. If they are hepatized, or if there is considerable pleuritic effusion this does not obtain.

SOCIETY PROCEEDINGS.

American Electro-Therapeutic Association.

Second Annual Meeting, held in New York, October 3, 4, 5 and 6, 1892.

WILLIAM J. MORTON, M.D., PREST.

FIRST DAY, OCTOBER 1—AFTERNOON SESSION.

(Continued from page 104.)

Now let us take a straight glass tube, 50 centimetres long, with a uniform interior cross section of say 1 square millimetre. Suppose the tube filled with a homogeneous liquid whose resistivity is 10 ohms. Then since a block of this liquid 1 cm. long, and 1 sq. cm. in cross section offers ten ohms, a column of the tube 1 cm. in length, having a cross section of 1-100th. of a sq. cm., will offer 1,000 ohms, and the total resistance of the entire 50 cm. column in the tube will be 50,000 ohms. Next suppose that a steady current of one milliampère is forced through this tube. By Ohm's law, the total difference of potential necessary to produce this current will be 1-1000 x 50,000 or 50 volts. While this current flows, there will be 50 volts potential difference between the ends of the tube, or a uniform gradient of potential of one volt per centimetre of its length. Consequently, if a unit charge of positive electricity could be placed in a little insulated capsule and introduced within the tube, there would be an electric force exerted upon the capsule of 1-300th. dyne, urging it forward, assuming that the electric force in water is the same as that exerted in air.

It seems to be a general law that the contact of any two dissimilar substances gives rise to an electrification and difference of potential between them. At the surface of contact between liquid and glass, there is an electrification, and once the liquid particles next the glass receive a charge, they are urged along the tube with a force depending on their electrification and on the gradient of potential. If the cross-section of the tube be sufficiently large, the moving electrified particles will tend to set up local convection currents, and the motion of the liquid near the tube's centre may be opposite in direction to that at the walls, but if the cross-section be very small, the whole column of liquid will be urged forward. For any given tube and liquid, the contact electrification of the liquid particles will be definitely established, and the moving force will depend only upon the gradient of potential, which in turn will be directly proportional to the current strength; for if we send two milliampères through the tube, the terminal difference of potential will rise from 50 to 100 volts, and the gradient will be increased from 1 to 2 volts per cm.

This moving force continually exerted upon the liquid particles will accelerate them until the friction due to their forward velocity balances the moving force. This will determine the rate of electric transfusion through the tube for the particular strength of current employed.

It is evident that the rate of transfusion would not be altered by any change in the length of the tube, for suppose it were increased to 1 metre. In order to sustain 1 milliampère through this doubled length and liquid resistance, we should have to double the terminal difference of potential, and employ 100 instead of 50 volts. The gradient of potential would still be 1 volt per cm., leaving the relation of moving to retarding forces unaltered. Again, suppose that instead of using one tube, we had five similar tubes of 50

⁶⁶ This list might be extended, but these are fair examples of the remaining cases.

⁶⁷ Anrep, Verhandl. d. phys. med. Gesellsch. zu Würzburg, Bd. xiv, H. ft. 1 u 2;—Larrabee, Jour. Am. Med. Assn., Jan. 19, 1889, p. 110;—Schulen, Virchow's Arch., 1876, Bd. lxxi, S. 109;—Vulpian, La France méd., July 31, 1878.

⁶⁸ Wegscheider, Virchow's Arch., Feb. 1877.

⁶⁹ It may be that when the ordinary surface thermometer is replaced by a more perfect instrument that valuable information may be derived from investigations in this line. For a consideration of our present knowledge on this subject consult Chareot, *Lec. clin. sur les mal. des Vieillards*, p. 19;—Fleischmann, *Wöcher med. Presse*, 1876, Nr. 20;—Gubler, *L'Union méd.*, 1857, Nov. 23 et 25;—Homburger, *Inaug. Dissert.*, Strassb., 1879;—Jacoud, *Traité de path. intern.*, t. I, p. 1032;—Landrieux, *Gaz. des hôp.*, 1875, p. 969;—Lépine, *Mém. soc. de biol.*, 1867, p. 133;—Seeligmüller, *Deutsche Arch. f. k. Med.*, Bd. xx, S. 110;—Wegscheider, *Virchow's Archiv.*, Bd. lxxix, S. 172;—et al.

⁷⁰ London Lancet, 1889, Vol. II, p. 971.

cms. length, side by side, and all connected in parallel. One milliampère through the set would give 1-5th of a milliampère through each singly. Also each tube having 50,000 ohms resistance, would demand a terminal potential difference of 10 volts for its share of current, and thus establish 1-5th of a volt gradient per cm. in all. The flow in each would thus be five times less, but since all live tubes are coincidentally active, the total transfusion would be the same. If then a porous diaphragm be regarded as a framework supporting a collection of parallel capillary tubes, the fact that in actual diaphragms, these tubes would not be all straight, continuous, or of uniform calibre, does not alter the principle or affect the average result. According to this view, the only function of the electric current in cataphoresis, is to establish against the resistance encountered, a gradient of potential, and the contact of the liquid with the solid walls, causes force to be exerted upon the electrified particles, while we have seen that neither the thickness of the diaphragm, nor its active surface should affect the rate of transfusion under those conditions; results according to experimental observation.

It was observed by Faraday that water, by contact or friction with other substances, became positively electrified in all the trials to which he subjected it, and its positive nature as an electric was more distinctly characterized than even that of the proverbial cat's skin. This property accounts for the general tendency of aqueous solutions to move from the anode towards the cathode in cataphoresis, down the gradient of electrical potential. Independent observations upon the movements of free particles suspended in glass tubes, filled with liquids, and traversed by electric currents, have supported this view.

It is evident according to the same theory, that for a given diaphragm-substance, aggregation-density and size of capillary tubes, as well as liquid within them, the transfusion per coulomb of electricity, or the rate of transfer per ampère, will be directly proportional to the resistivity of the liquid, since on this will depend the fall of potential in the tubes. The higher this resistance of the liquid, the greater must be the electrical pressure between the surfaces of the diaphragm to maintain the same current strength, and the moving force upon the liquid particles will be augmented in corresponding measure. The resistivity of the liquid is advantageous in, and only in, the diaphragm, for resistance offered to the passage of the current by the liquid masses on each side of the septum, will demand a certain increase in electromotive force to be expended locally in themselves, without any addition to the cataphoric transfer. Consequently the conditions for producing the greatest transfusion with a given number of volt's pressure, would be to place the electrodes as near as possible to the diaphragm, on each side of it, so as to develop almost the entire difference of potential within the capillary tubes, and produce the greatest available current strength. The area of diaphragm surface involved, does not, as we have seen, affect the rate of transfusion, but only the rate of transfusion per unit of area; so that it might still be independently advisable to keep that active surface above a certain limit, lest the density of current in the tubes might develop too much heat or be otherwise detrimental.

Whenever it is desired to produce the greatest possible transfusion of an aqueous solution of any salt, for a specified electrical transfer in coulombs, or amperehours, the solution should be as weak as possible so as to increase its resistivity, since pure water is almost a non-conductor. When on the contrary, the greatest transfer of the dissolved salt, and not of liquid merely, is needed, a very weak solution is evidently no longer indicated. Wiedemann's experiments on solution of salts, showed that roughly, the transfer of liquid

was inversely proportional to the percentage of solid contents. If this were strictly true, the strength of solution would evidently be a matter of indifference, since doubling the solid contents of the solution would just halve the liquid transfer, and leave the transfer of dissolved substance unchanged.

To a first approximation therefore, the strength of solution does not alter the transfer of solid matter per coulomb, and with a given diaphragm and solution everything depends on the strength of current. Strictly speaking, however, this rule is far from being clearly defined, for on the one hand, the conductivity of aqueous solutions of salts generally increases more slowly than the percentage of solid contents, so that on this account it would be advantageous to employ stronger solutions for a maximum transfer of salt per coulomb. On the other hand the effect of increasing the strength of solutions upon their contact electrification, is not yet clearly determined, and the loss in moving force on this consideration might in strong solutions more than offset the gain in greater resistivity per solid content, especially as greater frictional forces, retarding the motion might also be looked for. In the experiments of Freund with earthenware diaphragms, the transfusion increased with moderate densities of solution for CuSO_4 and ZnSO_4 , but on the contrary with $\text{Cu}(\text{NO}_3)_2$ and $\text{Zn}(\text{NO}_3)_2$, weak solutions appeared to possess the greater transfusivity constants.

A large and inviting field seems to be here open to experimental research, for although the theory of cataphoresis appears to satisfactorily explain the facts, the measurements that have been yet made with standard diaphragms and solutions seem all too few.

CATAPHORESIS.

By Prof. Edwin J. Houston, Philadelphia, Pa.

By cataphoresis is meant the introduction of drugs or medicaments into the human body by means of the electric current.

Cataphoresis is dependent for its operation on cataphoric action or electric osmose; or, as the latter is, perhaps, more frequently called, electric endosmose.

Cataphoric action, Porret's phenomenon, electric endosmose, electro-capillary phenomenon, electro-vection, and electro-filtration are sometimes used as synonymous terms.

Since cataphoresis or cataphoric action appears to be a modified variety of osmose, it may be well, before inquiring into the peculiarities of electric osmose, briefly to review the principal phenomena of simple or ordinary osmose.

By osmose, as the term is employed in physics, is meant the unequal diffusion or admixture of two liquids of different densities, through the pores of a thin wall or septum, separating the liquids from each other; two currents are thus established, each liquid tending to flow towards and mix with the other. These two currents are unequal in strength: the flow through the pores of the separating wall or septum towards one of the liquids being greater than it is towards the other.

There results, therefore, a tendency to produce a difference of level in the two adjoining liquids; so that, if, as is generally the case, the two liquids are at the same level at the start, there is soon produced a higher level in that liquid towards which the greater flow is directed.

The phenomena of osmose were first studied by means of a bladder filled with a saline solution, and fitted with a vertical glass tube. The bladder was plunged into a vessel filled with pure water. Under these circumstances two currents were established; one through the walls of the bladder from the water outside of it towards the saline solution it contained, and the other from the solution inside the bladder towards the water outside it.

The inequality in the strength of the two currents thus established is shown by the fact that the liquid mounts to a higher level in the tube than in the outer vessel.

The current flowing from outside the bladder inwards was formerly called the endosmotic current, and that flowing from within the bladder outwards, the exosmotic current.

It was soon evident, however, that these terms lacked any real distinctive character, since, if the saline solution be placed in the outer vessel, and the pure water in the bladder, the direction of the endosmotic and exosmotic currents is reversed.

In order to avoid this difficulty it is now generally agreed to call the endosmotic current that current which is directed towards the higher level, and the exosmotic current that current which is directed towards the lower level.

The phenomena are, however, by some designated by the simple term osmosis, or by still others diosmosis.

Becquerel has pointed out the fact that as soon as a difference of level has been produced by the action of osmose, a filtration ensues through the separating wall or diaphragm from the higher towards the lower level.

M. Becquerel, on pp. 50-52 of the *Comptes Rendus*, of July 8, 1872, says, as regards the exosmotic current: "We have now some conception of the possible origin of exosmose; it is due partly to diffusion and partly to the filtration resulting from the pressure of the column of liquid resulting from endosmose. I conceive that it was hardly sensible in the experiments of Graham, who operated with large surfaces affording but little elevation to the liquid columns resulting from the endosmose. Dutrochet was right in saying that exosmose transports more of salts than endosmose, as exosmose results partly from pressure, which causes the liquid to filter through with the salt which it holds in solution."

The phenomena of osmose have been carefully studied by Graham who found them to be intimately associated with those of diffusion, or the admixture of fluids of different densities, without the interposition of permeable septa.

According to Graham the rapidity with which diffusion takes place varies with the following circumstances, viz.:

1. With the chemical composition of the fluids, the action in general being most rapid with acids, next with alkalies, and least of all, with fluid albumen, gelatine, and gums.

2. With the temperature; the higher the temperature the greater the rapidity of action.

3. With the degree of concentration of one of the solutions as compared with that of the other.

4. With the difference between the densities of the two solutions; when this difference is constant, the rapidity of action is greater with weak than with concentrated solutions.

A curious variety of osmotic action has been studied by Graham for which he gave the name of dialysis. By its means he showed how crystallizable substances or crystalloids can be separated from non-crystallizable substances or colloids, by means of a porous membrane or diaphragm.

The separation is effected by means of an apparatus called a dialyser, which consists essentially of a glass dish with a bottom of artificial parchment. The mixture of crystalloids and colloids is placed in the dish which is then floated upon pure water. The crystalloids, the molecules of which are as a rule small, readily pass through the pores of the septum while the colloids, the molecules of which are large, remain behind.

If this be the correct explanation, it would seem that a more rapid separation of such substances by dialysis might be obtained by the aid of centrifugal force, by placing the mixture in a separating centrifugal machine, the walls of which are formed of suitably supported septa, placed in a vessel kept filled with pure water.

It would also be interesting in this connection to try

whether dialytic separation would not be accelerated by the passage of an electric current through the septum.

The phenomena of osmose are influenced by the character of the septum, the nature of the fluid substances as regards their action on such septum, as well as on each other, the physical conditions of the septum, as regards the dimension of the capillary spaces and their freedom from being clogged, and, to an extent as yet undetermined, by the presence of electrical currents that appear invariably to attend such liquid flow.

Discussion.

BOOK REVIEWS.

INTERNATIONAL CLINICS: A QUARTERLY OF CLINICAL LECTURES ON MEDICINE, NEUROLOGY, PEDIATRICS, SURGERY, GENITO-URINARY SURGERY, GYNECOLOGY, OPHTHALMOLOGY, LARYNGOLOGY, OTOTOLOGY, AND DERMATOLOGY. By Professors and Lecturers in the leading Medical Colleges of the United States, Great Britain, and Canada: Edited by JOHN M. KEATING, R.D., Colorado Springs, Col., Fellow of the College of Physicians, Philadelphia, etc., JUDSON DALAND, M.D., Philadelphia, Instructor in Clinical Medicine, and Lecturer on Physical Diagnosis and Symptomatology in the University of Pennsylvania, etc., J. MITCHEL BRUN, M.D., F.R.C.P., London, England, Physician and Lecturer on Therapeutics at the Charing Cross Hospital, D. W. FINLAY, M.D., F.R.C.P., Aberdeen, Scotland, Professor of Practice of Medicine in the University of Aberdeen, etc. Vol. II. Second Series, 1892. Philadelphia. J. B. Lippincott & Co.

The second volume of this series opens with a good portrait and biographical sketch of the late Dr. David Hayes Agnew. The sketch is from the pen of Dr. John Ashurst Jr., whose former association with Dr. Agnew afforded the opportunity for collecting the most interesting notes. The profession will undoubtedly welcome such biographical articles, and they ought to have a most wholesome and stimulating effect on ambitious young men.

The first two lectures in the section on medicine are upon myxedema by Drs. D. W. Finley and Thos. Oliver. The first is illustrated by two, and the second by four, portraits of typical cases. They record the good effects of jaborandi, which increased the excretion of urea and the injection into the tissues of freshly prepared juice from the thyroid gland of a sheep.

Dropsy is the subject discussed by Dr. P. H. Pye-Smith, of Guy's Hospital, in a much more satisfactory manner than is usually encountered in text-books. He believes that in acute and subacute nephritis there is an inflammation of the principle lymphatic spaces of the body, viz., the loose connective tissue under the skin, of the air vesicles and interlobular connective tissue of the lungs, and of the cavities formed out of the great pleuro-peritoneal lymph-sac.

The various forms of dropsy and their treatment are presented in a thoroughly scholarly manner.

A very rare clinical study is presented by Dr. James Hendrie Lloyd, in the Philadelphia hospital clinic, in a case of sporadic cretinism. A vivid description is given, and two portraits show a front and a profile view of the patient. The supposition that the drinking of water impregnated with lime is responsible for the pathological condition seems hardly tenable. The case under consideration "grew up in Philadelphia on Schuylkill water." Perhaps it would be well for our quaker brothers to boil their Schuylkill water.

General paresis of the insane, the subject of a brief lecture in Vol. I. by Dr. B. Sachs, of New York, is given a short notice here. Six pages are devoted to the etiology, differential diagnosis and treatment. The only dissatisfying feature is, like that of the first lecture, its brevity. Such important subjects cannot be accorded due consideration in so few words.

Dr. Rosa H. Park, of Buffalo, presents a case illustrative of the continuous immersion management of lacerated and compound fractures. He keeps the wounded limb for two or three days in a hot, weak solution of mercuric chloride, 1-7, until a healthy granulating surface shows itself, and then applies the ordinary antiseptic dressing and splints.

Dr. Robert Sandby, of Birmingham, occupies 18 pages in the section of surgery with a valuable lecture on stone in the kidney. The subject is discussed from a medical standpoint, and it should naturally have been placed in the section of medicine. Other peculiar ideas of classification are observable in the locating of Dr. James Tyson's lecture on diabetes mellitus in the section on genito-urinary and venereal diseases, and one by Dr. Charles B. Nancrede on stone in the bladder in the section on general surgery.

Dr. G. M. Leferts' paper on the treatment of acute and chronic pharyngitis is rather disappointing.

Dr. C. H. Burnett contributes an article on some common forms of diseases of the ear in a way that will be useful to general practitioners. He makes a slip of the pen on page 365 that is surprising in such a careful writer. The types make him say: "A foreign body in the middle ear may be a very simple matter: in fact, it is usually a simple matter so long as it is an inanimate foreign body." Of course he did not mean the middle ear, but the external auditory canal.

It is impracticable, with the space at our command, to give more than a general idea of the character of these lectures by forty-one writers on more than sixty-three subjects, filling 373 pages. There are thirty illustrations, many of which are exceptionally beautiful from a medical point of view, besides eighteen figures.

A few of these clinical lectures never would have been suspected of being such, were they not so labeled. They no more bear the impress of a clinical lecture than do the ordinary papers read before medical societies. Their authors seem to be of the opinion that these publications do not call for their best endeavors, and they content themselves with a few pages of indifferent material thrown unmethodically together. The result is that their so-called clinical lectures do not reflect the advanced thought and practice of our day, and they read like excerpts from some of the musty text-books of the past. The editors should prod them with the reminder that these books are expected to represent their best work and the most modern methods of treatment.

As a rule the lectures are studiously prepared, represent mature experience and are worthy of a place in such a collection. They cannot help but prove exceedingly useful to the mass of the profession—the general practitioners.

A TEXT-BOOK OF THE PRINCIPLES AND PRACTICE OF MEDICINE, for the use of medical students and practitioners. By HENRY M. LYMAN, A.M., M.D., Professor of the Principles and Practice of Medicine in Rush Medical College. Chicago. One hundred and seventy illustrations. Philadelphia: Lea Brothers & Co. 1892.

We may well ask ourselves, in these book-making days, what are the proper requisites of a text-book. Not many years ago a text-book was supposed to, and many did contain all that was then known regarding a particular department of medicine. Increased knowledge in every branch of medicine has served to emphasize the wide discrepancy existing between the actual knowledge on any one subject and that contained within the covers of any one volume. To meet this defect we have had the various encyclopædias, systems, etc., in this country and the ponderous many volumed "hand-books" so much favored by our German confrères. With this wealth of knowledge we must judge the capacity of a text-book writer to-day, more by what he leaves

out than by what he puts into his work. Not only has widening knowledge called for a modification of our text-books but methods of teaching have so changed within a few years that of necessity books for the use of undergraduates must be put together on somewhat different lines. The lengthening of professional curricula, the adoption of a graded system, lessening of didactic with increase in recitation work all call for a modification of our text-books. With these preliminary considerations we may ask what characteristics the text-book of to-day should have. It should not be written for the purpose of exploiting the particular news of the writer, especially if he thinks it necessary to support them by argument. It should be a true reflex of the most generally accepted views of the profession. It need not be original. Indeed the days of "originality" in text-book making have long since passed. It should be a symmetrical survey of the entire field which it purports to cover and it should be written in clear, terse English.

With these requisites in mind we may proceed to the examination of this work upon these lines.

The writer has wisely departed from the divisions adopted in our older works on practice, at the same time he has retained a brief statement of the general principles of pathology to serve as an introduction to the special topics. This first part includes some seventy-six pages devoted to a consideration of the following topics: growth and development, regressive disturbance of nutrition, progressive disturbances of nutrition, tumors, disorders induced by disturbance of circulation, contagion and infective diseases, inflammation, fever. It is needless to say that none of these subjects are handled exhaustively, and yet they form an excellent introduction to the special pathology which follows.

We are introduced to special diseases by a consideration of those disorders caused by microscopic animal parasites, which include the intestinal worms, then follow the protozoa, malarial fever and dysentery. Chapter five opens that portion of the work dealing with disorders caused by vegetable parasites, these include actinomycosis, malignant pustule, typhoid fever, influenza, diphtheria, tetanus, tuberculosis, glands, syphilis, cerebro-spinal meningitis, erysipelas, mumps, rotheln, measles, scarlet-fever, whooping-cough, dengue, relapsing fever, cholera, typhus plague, yellow fever, chicken-pox, small-pox, and hydrophobia. This portion of the work closes with a chapter on the general management of the infective diseases.

Part three is devoted to a consideration of the diseases of the alimentary canal. Part four, to the liver, pancreas, peritoneum and spleen. This is followed by diseases of the respiratory organs and organs of circulation.

Part seven and eight are devoted to a consideration of the diseases of the blood and nutrition. Diseases of the kidneys and genito-urinary organs are considered in part nine. The remaining portion of the work is devoted to a consideration of the disorders of the nervous system.

A careful perusal of the work will convince the practical teacher that the writer has produced a valuable text-book for undergraduates. It is at once apparent that the writer has mastered the art of literary digestion, and while the best work of the great masters in medicine are presented, yet each chapter bears the stamp of the writer's individual experience as a practitioner. It is, however, from the standpoint of the practical teacher that the value of the work is best shown. Its condensed practical and slightly dogmatic style render it of especial service to the beginner in internal medicine.

BILLROTH and other German surgeons report success in the use of celluloid to replace portions of the skull which have been loosened by injury, necessitating their removal.

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SATURDAY, FEBRUARY 4, 1893.

THE INDEX CATALOGUE.

Our readers will regret to learn that the cheese paring false economists in the House of Representatives, have stricken from the Sundry Civil Appropriation bill, the usual appropriation for the continuation of the great Index Catalogue of the Library of the Surgeon-General of the Army.

No scientific work could possibly be of more value to the medical profession than this, and we appeal to physicians everywhere to use their utmost efforts to have this appropriation restored.

The work which has received the highest commendation from scholars and librarians throughout the world is now near completion, and it would be a source of infinite regret, if the work should fail of completion through parsimonious legislation.

We call on our Indiana brethren, to arouse the Honorable Chairman of the Appropriations Committee, JUDGE HOLMAN, to a realization of the great wrong he is perhaps unwittingly inflicting on the medical profession, by his stoppage of the book.

THE ETIOLOGY OF CARCINOMA.

Carcinoma is the most important of all tumors on account of its frequency and its malignancy. Its study from various aspects has consequently produced the bulkiest literature, and to-day the unsolved question of the etiology of this tumor is engaging the attention of investigators the world over. The ancient theory that carcinoma was the local manifestation of a general dyscrasia due to the excess in the body of a certain humor, is now of historical interest only: the humoral theory gave way to the belief that carcinoma was primarily of local origin, becoming general later in its course, and it is unnecessary at

this time to enumerate the many clinical and anatomical facts and reasons which have led to the general acceptance of belief in the primarily local origin of carcinoma. In order to explain the origin in loco of tumors in general, COHNHEIM advanced his theory of misplaced remnants of embryonal tissue which may begin to proliferate in a remarkable manner at any time and he defines carcinoma as due to a typical multiplication in an embryonal matrix of epithelial cells with an intrinsic tendency to invade surrounding tissues irrespective of origin and of structure. In this age of biological investigation the misplaced embryonal remnant theory did not long remain unquestioned and undisputed; while it was a very ingenious and broad explanation of the origin of tumors in general. Yet its shortcomings were too many and too serious to pass without notice. Thus it was soon pointed out that it was a purely speculative theory, built upon probabilities; no one was able to demonstrate an actual misplaced embryonal matrix of epithelial cells, for instance, from which a carcinoma might develop; again, embryonal folds, fragments of which might go astray, exist at one time in all multicellular organisms, but nothing has ever been found in the inferior animals resembling a carcinoma although they are stated to be quite frequently subject to various forms of new growths of demonstrative parasitic origin. If all that is essential for a carcinoma to develop is a misplaced fragment of an embryonal fold, it is not clear why invertebrates should be so invariably exempt from such growths as they appear to be. But the supposition that carcinoma might be of parasitic origin was quite uniformly rejected partly because the disease never appeared in endemic or epidemic form, partly because transmission from one individual to another did not occur, and also because the numerous inoculation experiments in animals all appeared to be fruitless. In the meantime, clinical and anatomical facts with an unmistakable tendency towards strengthening the parasitic origin theory began to accumulate. The statistical study of carcinoma showed conclusively that various forms of local irritation played quite a part in the etiology. Quite a number of authentic cases of secondary implantation carcinoma were observed, as, for instance, flat-celled carcinoma of the œsophagus ulcerating and giving rise by implantation to similar tumors upon the mucous membrane of the stomach, or, after perforating the gullet, upon the mucous lining of the deeper bronchi. Then HANA, HAHN, WEHR and others finally succeeded in inoculating carcinoma from man to animals, from animal to animal, and from one part of the body of a carcinomatous patient to another. The discoveries of KOCH led to the search for bacteria in carcinoma by the cultivation method especially, but this was soon practically

abandoned, in part because it became apparent that the various forms of pyogenic and saprophytic bacteria were present solely by accident, but principally because the application of the refined micro-technique of FLEMING and his followers to the study of carcinoma led almost immediately to the demonstration of bodies which were interpreted as protozoic parasites and during the last few years a whole series of publications have appeared embodying the results reached by ardent investigators in many lands in their efforts to establish animal parasites as the primary cause of carcinoma and other tumors. In connection with this it is very interesting to note that VIRCHOW in 1851 described peculiar cavities in the interior of cancer cells which he considered were formed by endogenous cell division and in this opinion WAGNER coincided. Since 1889 continuous refinement and improvement in technique has aided in the investigation and study of carcinomas for animal parasites, but it was soon shown that in the multitude of new micro-technical methods at command lay possibilities of grave error; intra and intercellular bodies have been described and figured and interpreted as veritable parasites, which subsequent critical re-investigation showed to be in all reasonable probability various forms of cell and nuclear degeneration, or cell inclusions of dead blood corpuscles, or artificial products of the particular staining method employed. The parasites of the earlier investigators in this line, such as NEISSER, DAVIS, WICKHAM, THOMA, SJÖBRING, and many others, were thought by BONEL, KLEBS, RIBBERT, SCHUTZ, WELCH, MACALLUM, and many more to be "pseudo-parasites," including under this term the degeneration products, nuclear fragments, foreign substances, etc. Some investigators, however, believe that among the bodies described there might possibly exist true parasites, and while the quite recent demonstrations of SOUDAKENITCH, STROEBE, PODWYSZOZKI and SAWTCHENKO, RUFFER and WALKER have been subjected to considerable criticism, yet they have received confirmation and approval from numerous sources, and it was even thought that some of these observers had described a certain number of missing stages in the development of the alleged carcinoma parasite. Thus STROEBE, PODWYSZOZKI and SAWTCHENKO claimed that they had discovered falciform bodies in several instances of carcinoma. This claim has already been attacked by METSCHNEKOFF, and we print elsewhere in this issue of THE JOURNAL a communication presented at the last meeting of the Pathological Section of the Chicago Academy of Sciences, by PROFESSOR OHLMACHER, in which it can be seen that he shows quite conclusively that the falciform and other bodies of PODWYSZOZKI and his followers are artificial products due to the use of safranin and iodine or safranin and picric acid in the staining

process. OHLMACHER's work is of importance not only because it annihilates the claims of the investigators mentioned, but also because it pointedly indicates the liability to form wrong conclusions from the appearances produced by the use of some of the rapidly multiplying, new micro-technical procedures and because it shows that safranin and iodine, and safranin and picric acid alcohol must be regarded as unsafe and unreliable combinations. Our knowledge of ultimate nuclear and cellular chemistry and the chemical and physical changes induced in protoplasm by the numerous and complex fixing and staining agents now in vogue, is so extremely limited that it behooves the investigators working to demonstrate the obscure etiological agent in carcinoma and other tumors by means of micro-technical methods to formulate their conclusions only after the most mature deliberation, and after the greatest care has been exercised to eliminate all possible sources of error. Indeed it would seem that the fate of SJÖBRING's parasite at the hands of RIBBERT, of RUSSELL's organisms at the hands of SHATTOCK and BALLANCE, and of PODWYSZOZKI's and STROEBE's falciform and other stages at the hands of OHLMACHER would warn investigators in this field from such reckless announcement of positive results as has hitherto been the case and particularly should this warning be heeded because there is as yet but very little opportunity if any, for control experiments in staining with known pathogenic sporozoa. It is not improbable that among the many forms and bodies demonstrated in carcinoma actual parasites may be found and investigators generally seem to lean to the view that they will come to belong to the coccidia, the same protozoan class which furnishes the organisms in malaria, in coccidiosis of the rabbit's liver, in epithelioma contagiosum of chickens and pigeons, in psorospermic cysts in man, etc., but it really appears that the limit of what can be learned from simple microscopic examination of neoplasms has been reached. The biology of the coccidia must be still much further elucidated in order that a safe foundation for their study as pathogenic agents can be obtained; they must be cultivated artificially in order to enable us to deal with them with the same scientific accuracy as with bacteria; and in the instance of carcinoma it would seem that experimentation would have to be directly along entirely new paths because it has been fully shown that it is only with the very greatest difficulty, and in some exceptional instances that carcinoma can be successfully inoculated into animals, and this would indicate that animals are very largely, as a general rule, immune to the specific cause of carcinoma in the form in which he exists in the growing tumor; whether the organisms of carcinoma, if found outside of the body, will then be demonstrated to be pathogenic in

animals belongs to the problems that future investigation must solve before this obscure chapter in pathology can be fully elucidated.

REMOVAL OF THE OVARIES AS A THERAPEUTIC MEASURE IN PUBLIC INSTITUTIONS FOR THE INSANE.

The State Board of Public Charities of Pennsylvania has recently been induced to take action upon the sexual mutilation of insane women, for therapeutic purposes, which has lately been introduced and practiced in one of the State institutions for the insane. The attention of the Board was directly called to this subject by its Committee on Lunacy, which made a special report upon the subject of "Removal of the Ovaries as a Cure for Insanity." This was accompanied by a statement of opinion as to the propriety of the operation, from the legal member of the board. As it is precisely the legal aspect of this subject which hitherto has been, apparently, overlooked, we will give this brief opinion in full, after making some abstracts from the report of the Lunacy Committee above referred to, a copy of which was directed to be sent, with the unanimous approval of the Board of Public Charities, to the Trustees of the State Hospital for the Insane, at Norristown, Pa. The following note appears upon the office copy of the report:

This action was taken upon a report of the committee's secretary, on Oct. 29, 1892, that four insane cases were seen by him in a separate annex ward of the Norristown Hospital which were just rallying from the operation of oöphorectomy, performed there by Dr. Joseph Price, in consultation with Dr. Alice Bennett, with the consent of the Hospital Trustees.

It was further intimated that fifty cases had been already marked for operation, by this method, in the wards of the same institution.

The committee's report states that modern advances in abdominal surgery have greatly stimulated operations within the pelvic cavity, and that surgeons and gynecologists are now enabled to remove the uterus or ovaries with facility and relative safety. It also refers to the fact that the operation of oöphorectomy has been performed, both in this country and Europe, in cases of mental disease thought to originate in, or be maintained by, diseased or disordered states of these organs, in the hope that the mental and physical diseases would be cured. In this country, these operations upon lunatics have been, with few exceptions, confined to private practice, or to general hospitals; but only very recently the trustees of the State Hospital for the Insane, at Norristown, have set apart a separate building for such purpose, and several insane patients there have already had their ovaries extirpated. In general practice, these operations have been very frequently performed for the relief or cure of many forms of uterine and ovarian disease and

functional disorder, including those nervous and mental maladies which appear to depend upon, or to be otherwise aggravated by, such local conditions. The increasing frequency of these experimental mutilations and their doubtful ultimate success, have caused conservative medical opinion to halt and to dispassionately discuss the whole subject, and to inquire not only into the immediate, but also the future results of such operations. The medical literature and statistics of the subject are relatively scanty, compared with the large number of operations performed, which is, in part, due to the difficulty of keeping the subjects under observation for years afterward, as it is absolutely necessary to do in order to arrive at the positive results. Many insane, epileptic, and hystero-epileptic women, who have been thus mutilated, have subsequently found their way into hospitals for the insane, and are heard of no more. This is also the case in many instances where insanity has *resulted* from this operation, which is by no means an unusual occurrence. Those whose duty it is to care for the insane in institutions are familiar with these ultimate failures, whose last condition is worse than the first. As a rule, to which there are but few exceptions, medical superintendents of hospitals for the insane now regard with disfavor the castration of women as a cure for mental disorders, even in those cases where there appears to be some causative or irritative connection, or sympathy, between the disordered brain and the ovaries. From whatever physical disorder the insanity may have developed originally, or may be aggravated by, the centers of the brain and spinal cord undoubtedly receive, early in the pathological change, such a profound impression as will *persist* long after the removal of the alleged offending organs.

Extirpation of the ovaries in lunatics is only practiced as a last resort, after every other expedient has been unsuccessfully tried, and in such cases the brain and cord have doubtless become permanently altered, or impelled to disordered action, and functional, if not organic, deterioration has taken place. It is to these nervous centers, diseased or disturbed as the case may be, that we must look in such cases for the real focus, or irritating influence; and we learn, by the abundant examples of failure, not to hope for the relief of a central lesion by the removal of distant organs, even though these may *appear* to periodically aggravate the mental condition. The ovaries of insane women, it is true, sometimes present such gross forms of disease as to absolutely demand extirpation, and the Committee makes no objection to the operation, where gross lesions exist, or when life is obviously in danger. Allusion is not here made to such exceptional cases; but it has been lately recommended and practiced where the mental disorder only

appear to be more or less influenced by the generative apparatus. "In such cases," says the Committee, "in our opinion, this operation is not justifiable. As a general rule, to which there must be an occasional exception, we are forced to regard experimental operations upon insane women, for the purpose of restoring their reason, with disfavor, and to consider it unwarrantable and indefensible. As to the practice of such operations in our State hospitals, it is a matter of grave doubt whether a relative or guardian of an insane woman has the moral or legal right to give consent to the unsexing of the insane person, whose power to give or withhold consent is temporarily or permanently in abeyance. What redress would such a person have, if, in recovering her reason, she objected to her mutilated condition?" This, at once, brings up the question as to the personal rights of the insane, and an opinion being requested from the legal member of the Committee, Mr. THOMAS W. BARLOW, he wrote as follows:

I am of opinion that the operation of oöphorectomy upon insane women, as recently practiced and as proposed to be practiced in one of our State Hospitals for the Insane, unless necessary to save life, is not only illegal, but, in view of its experimental character, it is brutal and inhuman, and not excusable on any reasonable ground. To quote a learned medical opinion: "To operate on organs not diseased for the relief of undefinable symptoms, hysterical symptoms, and epileptic symptoms, is unwarranted." A lunatic cannot give a legal consent to the performance of an experimental operation. Nor can her relatives legally give such a consent in her behalf, and therefore a surgeon practicing oöphorectomy upon an insane woman, unless to save life, takes a great risk. He may take the risk of a criminal prosecution.

It is regarded by the best medical authorities as a useless and improper expedient for the cure or relief of insanity, and the operation of oöphorectomy in a public hospital upon indigent insane women must be regarded as largely experimental, and for that reason is bound to reflect upon hospital authorities now boasting of modern humane methods.

The Committee on Lunacy of the Board of Public Charities has full authority under existing statutes to prohibit the performance of such operations. It is the duty of this committee to "regulate the treatment of the insane," and this, whether it involves the restraint used, the character of food furnished, or the medical and surgical methods exercised in their behalf. The zeal of the gynecologist is being carried to an unusual extent when it proposes to use a State Hospital for the Insane as an experimental station, where lunatic women are to be subjected to doubtful operations for supposed cures. If it is to be permitted in some forty or fifty cases, as proposed, it might be well to practice the experiment upon the entire female lunatic population, so that the gynecologist may have the large opportunity he doubtless craves to see just what would happen. At the expense of some lives, the continued and aggravated insanity of most of his subjects, with a few supposed cures and improvements, he could read his conclusions learnedly to his gynecological brethren, with the resultant added forward movement up his ladder of fame.

Dr. Wharton Sinkler, in a paper recently published in the *University Medical Magazine*, and which he read before the Association of American Physicians, in September, 1891, says, "as to the benefits derived by patients who have undergone oöphorectomy for insanity, epilepsy, hysteria, and the different forms of neuralgia and nervous troubles, the opinion of different observers varies to such an extent that we might believe that totally different beings and conditions were considered. Certain writers give the most glowing accounts of the benefit obtained by almost every patient operated upon, while others regard the result as being always so unfavorable that the operation is never justifiable."

All of which proves that the operation is wholly experimental, of great uncertainty, and of very doubtful expediency.

This is the operation that it is proposed to make upon a large number of indigent insane women.

As a member of the State Board of Charities, I deem it to be my duty to protest against such a proceeding, and, as the legal member of the Committee on Lunacy, I pronounce it to be illegal and unjustifiable.

This, to the gynecologists may seem like an unwarrantable interference with questions which they alone are competent to decide. When it is remembered that the report is from the pen of the distinguished chairman of the Lunacy Committee, Dr. THOMAS G. MORTON, who has been for many years upon the surgical staff of the Pennsylvania Hospital, the character of the opposition to this innovation in the treatment of insanity may be appreciated. If this were not sufficient, however, the opinion of Mr. BARLOW should make future operators cautious before assuming the legal responsibility of castrating helpless and mentally afflicted patients in public institutions, who, even if they should recover their reason, might properly object to their mutilated condition.

Some of the pioneers in gynecology are also protesting against the abuses of oöphorectomy. PROFESSOR GOODELL in the main agrees with Dr. MORTON in the points made, and declares that "the whole business of removing the ovaries has been horribly abused;" and "was glad that Dr. MORTON had taken such a firm stand in this matter." Dr. JOHN B. CHAPIN, Superintendent of the Pennsylvania Hospital for the Insane, and President of the Association of Superintendents of American Hospitals for the Insane, expresses much satisfaction and gratification which he experienced on reading the preceding paper. He thanks the Committee and State Board for coming forward to exercise the powers of their office to save the hospitals and the profession from what threatens to become a scandalous proceeding. "To erect a hospital, or propose one, where women were to be castrated in companies of fifties, with the hope of a cure of insanity, would be generally regarded, in the present state of meagre knowledge upon the subject, as revolting." . . . "In a case in England, Dr. ROBERT BARNES declined to perform the operation without the consent of the Commissioners of Lunacy." . . . "Hospitals for the insane might easily lose a portion of the slender hold they now have upon the public and friends of patients, if it were understood that the patients were subjected to experimental operations of hazardous nature."

On the other hand, Dr. JOSEPH PRICE has published a letter, denying either the brutality of the operation, or that it is, in selected cases, experimental in its nature. He construes it all as a personal attack upon Dr. ALICE BENNETT, and as intended, indirectly, as a condemnation of her course in this matter. This appears, to an impartial out-

sider, as an attempt to side-track the main question, and to belittle the important interests under consideration. Dr. MORTON says that insanity is not a disease of the ovaries, nor of any other part of the body which is accessible to the surgeon's knife, and Mr. BARLOW says that legal consent of the patient for such mutilation can not be obtained.

DOMESTIC CORRESPONDENCE.

Government Check.

We hardly ever go to the postoffice without finding a letter or a circular from some firm who is anxious to instruct us in the practice of medicine. Each letter has advice as to what remedy is best to give in certain maladies, and we are told that these remedies are giving wonderful results and the greatest satisfaction. If all we are told in these circulars and letters is true, the medical schools had just as well close up shop and quit business. I am confident that I have received letters describing the treatment of nearly all, if not quite all, the diseases that the human family is subject to, and these letters tell us how to cure consumption, cancer, and other maladies, that we had been taught were incurable. It may seem that we are ungrateful if we do not appreciate all this kindness, and I must not forget to say that most of these firms propose to furnish us with a sample bottle of their medicine, with directions free, if we will only pay express charges. Think of it, a remedy for any disease, free of charge.

Now, all I have to do (if these firms are telling the truth) is to find the cases and give the medicine. They will do the rest. I have always thought that we lived in a great and glorious country, and that people were liberal hearted to some excess, but I had not believed before that there was a class so liberal hearted as to give away such valuable information and such grand remedies. I had thought that when man learned to cure all manner of diseases they would first make a fortune out of their wonderful discoveries, and then give the formula to less favored individuals, but not so. To-day, when a firm learns that a certain compound will cure a certain malady; they make up large quantities of it, bottle it up nicely, learn the names of all the poor country doctors, and write them all about the remedy, where it was discovered, the great number of people who use it, and propose to give each doctor a bottle, who, if he is not sick himself, can give his bottle (or if he is not liberal, sell it) to some one who is sick, and thereby increase his reputation and wealth. All this liberality makes us sorry that we had lost so much time and money in trying to learn something about disease. If I had only waited until this year and put out my shingle, all I would have had to do, would be to read the mail matter that these liberal firms send me, and write them word to send me the medicine. (The patients themselves could have told me what was the matter with them.) Just think of it, nothing to do but answer letters. A few stamps and a few sheets of paper would be all the capital I would have needed to start with. I could have made money from the start. Most of my remedies would cost me twenty-five cents (express charges) and I could sell them for a dollar, and in a few months I could go it wholesale and soon be a Gould—but being an old fogey, I let the medical schools, instrument maker and drug stores “do me up,” now I am a century behind, and men are *giving* the profession all they need. Woe, is to me and my fellow practitioners, who are so far behind, so foolhardy and selfish as not to accept all these good things.

Now, Mr. Editor, I am sick and tired of these kind of gentlemen. The last one who wrote me said that he did not presume to dictate to me what remedy to use in any disease, but he had a wonderful remedy for young girls who were tardy about menstruating. I would love to know how to get rid of these kind of gents. Advertising them in any way, would be the thing they want. If you can suggest any remedy through *THE JOURNAL*, you will be a benefactor. Doubtless you are bored to some extent with these same kind of gentlemen. If no other plan will do, I would suggest that at the next meeting of the Association, a resolution be passed condemning the prescribing of any advertised remedy, whose formula is not known to the prescriber. These gentlemen need a little of their cheek knocked off of them, and if the Association will condemn their practices they will probably reform. Very respectfully,

Oran, Mo.

W. D. HOWLE.

“Collateral Associations.”

To the Editor of the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*:

Sir:—Referring to the editorial on “Collateral Associations” in your issue of January 21, I may be permitted to remind you that for several years I have been advocating the very subject of your writing—the encouragement and facilitation by the American Medical Association of the meeting of these collateral organizations in connection with its own annual session. You say these “societies would very greatly enhance their own usefulness and prosperity by arranging their place of meeting to correspond with the same place, and either the week before, or after, that of the American Medical Association.” But very few men in the profession can afford to sacrifice the time or incur the expense of two continuous weeks of attendance as you propose. The American Academy of Medicine has tried the experiment of meeting on the Saturday and Monday immediately preceding the meeting of the American Medical Association, but the intervening Sunday has shown the very decided objection to this course. To attempt to meet on the Saturday and Monday succeeding the adjournment of the American Medical Association would prove even more objectionable, since under present circumstances a large proportion of the members of the Association do not remain for the last day of the session on Friday.

The arrangement which I have advocated, and which I still believe the only one practicable, is for the Association to hold its sessions on Wednesday, Thursday, Friday and Saturday, leaving Monday and Tuesday not only for these collateral associations, but for its own standing committees—the Board of Trustees, the Committee on General Business, the Judicial Council and the Executive Committees of the Sections to prepare, with proper deliberation, the work which can now only be done hastily and in a makeshift fashion, during the intervals of the general sessions or at the sacrifice of attendance upon the latter or the Section meetings. A further considerable advantage will be the opportunity for preliminary registration, so that upon the formal opening of the session, if on Wednesday, the heretofore impossible spectacle may be witnessed of the assembly of the great body of the Association prepared to listen to the address of the President. Moreover, it has not unfrequently occurred that important questions have presented themselves on which delegates, who alone are entitled to vote and then only after having been duly registered, have not hesitated to act, although they have not yet been able to register—an unpardonable inconsistency in a body so tenaciously insistent upon the strictest conventionality. I am confident, were the experiment tried, that the assignment of Monday and Tuesday for all work

foreign to the general sessions of the Association, would so expedite its business that Wednesday, Thursday and Friday would actually suffice for the general addresses and Section papers and discussions, and leave little for Saturday beyond the formality of adjournment.

The collateral associations you enumerate—the American Academy of Medicine, the American Medical College Association, the American Medical Temperance Association, the American Microscopical Association, the Association of Military Surgeons of the National Guard of the United States, the Association of Railway Surgeons, and others, as the American Climatological Association, the American Health Resort Association, the Association of Acting Assistant Surgeons, etc., are in no sense antagonistic to the American Medical Association, while their purposes are such as do not come within the scope of, or permit their absorption by, any of the eleven Sections of that body. You state: "It is no exaggeration to say that nine-tenths of the members of these organizations" [referring to only two of them], belong to the American Medical Association. Hence, it is easy to see how desirable it is to them that they may be able to save time and money by such a concentration of meetings as suggested."

The certain result would be to transfer their entire membership after their adjournment on Tuesday night, to the American Medical Association on its meeting the following (Wednesday) morning. The danger now is that the community of interest among the members of these several minor bodies may prove so attractive that they may prefer to attend them to the neglect of the older body, or, as in 1889, when the American Climatological Association met on the Monday and Tuesday of the week of the American Medical Association's meeting, members shall be compelled to elect whether to sacrifice attendance upon the last day of the one or the first day of the other, both thus suffering a loss, which need not have occurred had the American Medical Association begun its proceedings on Wednesday.

I have, however, so often presented these views in the Association that I am quite willing to leave the solution of the question to the course of events. Those who earnestly wish to see the American Medical Association become greater in its membership and influence, cannot but agree with your statement respecting the "focalization" of the collateral National medical organizations that "in a unification of work and purposes will be found the greatest good to the greatest number."

ALBERT L. GIBON, M.D.

145 E. 21st St., New York City.

Asepsable or Aseptizable.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

In a recent issue of THE JOURNAL appeared a note from a firm of instrument manufacturers, asking for a word to describe the character of instruments which were susceptible of being rendered aseptic, in order to conform to the requirements of modern surgery. I would suggest "Aseptizable" in preference to "Asepsable," because the verb *aseptiser* is already used in French surgical books and "aseptisable" or "aseptizable" in English would be in harmony with continental usage, and therefore should be preferred to the entirely new word. Moreover, we shall soon be employing the verb "aseptize" to describe what is to be done to the instruments before operating and perhaps also the noun "aseptization" to express the result of the procedure.

MISCELLANY.

THE INTERNATIONAL CONGRESS OF CHARITIES, CORRECTION AND PHILANTHROPY, JUNE 12-18, 1893.—*Sub-Section on the Training of Nurses.*—In accordance with the general program of the Section, Nurses will take part in the general session and in two sectional meetings, and will hold in addition three separate meetings—June 13, 14, and 17.

For these three separate meetings papers on subjects of special interest to Nurses will be prepared and discussed. The following are suggested as subjects to select from:

Training Schools in England and America. Proper Organization of Training Schools. Nursing in Infirmarys and Almshouses. Nursing of the Insane. Obstetric Nursing. Nursing of Infectious Diseases. Nursing in Sanatoriums and Home Hospitals. Private Nursing. Nursing by Religious Orders. Work of Graduate Nurses.

All communications relating to this portion of the work of the Section should be addressed to

MISS ISABEL A. HAMPTON, *Chairman*,
The Johns Hopkins Hospital,
Baltimore, Md.

AMERICAN SURGICAL ASSOCIATION.—The preliminary program for the meeting to be held at Buffalo, N. Y., May 30, 31, and June 1, 1893, is as follows:

President's Address.

1. The Modern Treatment of Compound Fractures. By Dr. Nicholas Senn, Chicago. Discussion by Drs. Roswell Park and F. S. Dennis.

2. Hypertrophies and Degenerations of Cicatrices and Cicatricial Tissue. By Dr. J. Collins Warren, Boston. Discussion by Drs. C. H. Mastin, G. R. Fowler and W. H. Carmalt.

3. Surgery of the Gall Bladder. By Dr. M. H. Richardson, Boston. Discussion by Drs. J. Ewing Mears, A. Vander Veer, W. H. Carmalt, and Theo. A. McGraw.

4. Surgery of the Rectum. By Dr. A. G. Gerster, New York. Discussion by Drs. L. S. Pilcher, H. H. Mudd, and L. McLane Tiffany.

5. Surgical Treatment of Cervical, Thoracic and Abdominal Aneurism. By Dr. C. B. Nanerode, Ann Arbor. Discussion by

6. Surgery of the Prostate. By Dr. J. William White, Philadelphia. Discussion by Drs. Hunter McGuire, T. F. Prewitt, R. F. Weir, and F. H. Gerrish.

7. Treatment of Carbuncle. By Dr. F. Lange, New York. Discussion by Drs. Robert Abbe, J. B. Roberts, and J. S. Wight.

In addition to the above specially selected subjects, the following papers have been offered:

1. Unreduced Dislocations of the Astragalus. By Dr. Stephen Smith, New York.

Fellows who propose to present volunteer papers are requested to send to either of the undersigned the titles of their proposed papers as soon as possible, in order that they may be properly classified and arranged for the final program.

Fellows are also requested to notify the Chairman of the Committee whether they will take part in the discussion upon any of the special subjects given in the above list.

NICHOLAS SENN, *President*,
J. R. WEIST, *Secretary*,
J. EWING MEARS, *Recorder*,
F. S. DENNIS,
JOHN S. BILLINGS,
Business Committee.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from January 21, 1893, to January 27, 1893.

Capt. Freeman V. Walker, Asst. Surgeon U. S. A., is granted leave of absence for four months, on surgeon's certificate of disability, on condition that he spend the period of leave as a patient in the Army and Navy General Hospital, Hot Springs, Ark.

OFFICIAL LIST OF CHANGES in the Medical Corps of the U. S. Navy, for the Week Ending January 28, 1893.

P. A. Surgeon W. F. Arnold, detached from U. S. training ship "Richmond," and granted three weeks leave of absence.

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No. 6.

ORIGINAL ARTICLES.

A CONSIDERATION OF SOME OF THE OPERATIVE MEASURES EMPLOYED IN GYNECOLOGY.

The President's Address, delivered at the Annual Meeting of the Gynecological Society of Boston, January 12, 1893

BY AUGUSTUS P. CLARKE, A.M., M.D.,
OF CAMBRIDGE, MASS.

In looking over the records of our work of the past year for a theme for the President's address, many subjects present themselves as worthy of consideration. For the cure or for the relief of many affections which occur in the pelvic and other organs, abdominal section still holds a prominent rank among the procedures to be adopted. It is gratifying to learn that there has been an increasing success attending operations necessitating abdominal section; this has been shown not only in the cases in which strict antiseptic precautions have been instituted, but also in a large class of cases in which no other precautions were enjoined than the maintenance of a good degree of cleanliness on the part of the operator.

In the abdomen and pelvis there not unfrequently occur diseases or lesions which are not amenable to surgical procedures. Malignant disease of the internal organs, or adhesions of the ileum or other portion of the small intestine to the sigmoid flexure or to other parts of the colon may offer insurmountable obstacles to success. So also may adhesions that follow the presence of hernia of long standing. An operation for relief of any of these may fail or be attended with much inconvenience. Hæmorrhage from the presence of large plexuses of veins, or hæmorrhage as the effect of violence to the vascular tissues abnormally distributed to the deeper organs and structures may be the cause of serious if not of fatal results. In dealing with cases in which any such adverse elements have entered, there can be no doubt that the recent advances attained in gynecic surgery are continually offering greater immunity against the occurrence of these mishaps. It hardly seems too much to hope that ere long, by further development of the latent possibilities of our art, we shall be enabled to achieve much more in this direction. The application of aseptic animal sutures by a method recently carried out is often a most effectual precaution against the occurrence of hæmorrhage. The continuous suture performed somewhat after the manner of the stitch of the cordwainer may be employed with most excellent results. Aseptic animal sutures are unquestionably the most effectual for such service. Antiseptic catgut ligatures were employed by Mr. Lister in 1868, and were used principally for the deligation of arteries. Before this date, however, Mr. Lister had used other kinds of antiseptic ligatures. After he had tied the artery

or vessel the ends of the ligature were cut short. The ligature was then left to be disposed of by absorption or otherwise. Surgeons at that time had much hesitancy in adopting their use, for their employment was sometimes attended with untoward symptoms. In one case¹ at least the catgut underwent a change; it altered, softened and disintegrated by the heat and moisture of the living tissues, and the clot formed at the point where the ligature was applied was forced onward into the cerebral arteries, causing embolism and fatal results. An early published record we have of the employment of the kangaroo tendon for surgical purposes is that by Dr. T. M. Girdlestone,² of Melbourne, Australia, in 1877. Dr. Girdlestone exhibited to the Medical Society of Victoria some carbolicized kangaroo tendon prepared for use in lieu of catgut. They had been preserved in carbolic oil after the manner recommended by Professor Lister. In Melbourne at an early date they seem to have been used in ovariectomy, vesico-vaginal fistula, in hernia, varicocele and in other plastic operations. In 1878 Mr. Callender,³ the President of the Clinical Society of London, showed some specimens of tendon ligature which had been obtained from Dr. Girdlestone through the kindness of Mr. Hulme, of Guildford. The tendons were from the tail of the kangaroo, and were considered preferable to the catgut ligature in their angular form, allowing of their being tied securely, the knot not slipping, and their solution not taking place so rapidly as the catgut. In Melbourne before this date the tendon was much used for sutures, but since the supply of kangaroo tails was limited, Mr. Callender then proposed to obtain ligatures from the tendons of the tail of the horse. About that time Mr. Garner proposed the use of ligatures from the tendon of the ox; they were roughly made by simply splitting up the tendons with a penknife and soaking them in carbolic acid.

In the *British Medical Journal*⁴ of May 2, 1885, is a contribution by C. B. Keetly on "Buried Sutures." That author speaks of the importance of suturing separately periosteum to periosteum, muscle to muscle, deep fascia to deep fascia and skin to skin after deep incisions of all kinds. He makes mention of aseptic animal sutures, such as carbolicized catgut to be used separately as buried sutures. He concluded his paper by saying that it is only in strictly antiseptic surgery that he would venture to recommend the use of such sutures. Soon after this Schroeder employed layers of continuous catgut sutures in the operation for the restoration of the perineum. Each layer was so adjusted in the parts as to superimpose or bury the other. Thomas about this time used buried continuous catgut sutures in closing the abdomen in his laparotomy cases. In the Section of

¹ Lancet, June, 1869.

² Australian Medical Journal, Vol. xxii, 1877.

³ Lancet, 1878.

⁴ Journal of the American Medical Association, Vol. iv, 1885.

Gynecology of the Ninth International Medical Congress, at Washington, 1887, Dr. Cordis read for Dr. Veuillet, of Geneva, Switzerland, a paper on the buried suture. In the operation for vesico-vaginal fistula Prof. Veuillet used iodolized silk; he claimed that the application of such sutures is innocuous and is efficient. Dr. Marcy contributed a paper to the Section on Surgery, at the thirty-ninth annual meeting of the American Medical Association, May, 1888, on the surgical advantages of the buried animal suture and its adaptability to special purposes. He made mention of Lister's method and the application which that writer had early made of antiseptic catgut for ligatures to arteries. Dr. Marcy stated that the buried suture at that time had become one of the chief factors in his method for restoration of the perineum. He spoke of its use in closing the abdomen in laparotomy for any cause, of its use in hernia operations, and in operations on the rectum. Dr. Marcy stated that he had extended the application of buried suturing to the treatment of wounds in nearly every part of the body. So pleased had he become with this method of procedure in operations for the restoration of the perineum that he had discontinued the use of his "safety-pins" in operations, as described by him in a paper⁵ which he read before the Section of Obstetrics and Gynecology of the Suffolk District Medical Society, February 16, 1887. Dr. Marcy, as he thought needful, had used the deep buried tendon suture in the cases in which he had used the safety-pin of his own device. In the paper which Dr. Marcy read in 1888 mention is made of the report of two cases of strangulated inguinal hernia, one of which occurred in my practice, in February, 1871, the other which he also saw with Dr. W. W. Wellington, of Cambridge, in April of the same year. The case occurring in my practice was the first of all that was treated in this manner antiseptically. After the stricture had been divided, the sac unopened was pushed upward, with its contents, into the abdominal cavity. As we were about to close the canal with sutures in order to prevent an immediate return of the hernia, it then occurred to Dr. Marcy that the use of catgut sutures instead might be of benefit in helping to bring about an obliteration or agglutination of the inguinal ring. I readily concurred in the suggestion, for I had previously read Mr. Lister's article on antiseptic animal ligatures, as first published in the *Lancet* of April, 1869, an abstract of which appeared in *Braithwaite*, part 59, p. 101, July, 1869, and I had regarded Mr. Lister's deductions as of much importance.

Dr. Marcy immediately went to his house, which was at some distance, while I in the meantime kept the patient under the influence of the anæsthetic. After his return, two stitches of medium-sized carbolized catgut were taken through the walls or pillars of the canal. The external wound was closed in the ordinary way by means of silk sutures. The dressings to the wound were moistened by the frequent application of carbolic acid in solution. The parts did not heal altogether by the first intention, and by some misunderstanding on the part of the nurse the full strength of the five per cent. solution of the acid for awhile was employed. This however appeared to do no harm; it rather favored than otherwise, union of the deeper parts, by adhesive inflammation. The sutures gave no apparent trouble; they must have

been absorbed, for careful daily examination showed no trace of their appearing in the open wound. An abundant deposition of new tissue could be felt in the line of the opening about the walls of the canal and along the internal ring where the sutures had been applied. June 14, 1871, there came into my practice another case of strangulated inguinal hernia. The case occurred in a man aged forty-four years. Taxis failing, an operation was resorted to. Assisted by the late Dr. A. F. Holt, I made an application of carbolized catgut ligature to the pillars and internal ring; there followed an immediate and permanent cure. Since that time the application of carbolized catgut or aseptic animal sutures in herniotomy has been continued with excellent results.

The record of these cases in which carbolized animal sutures were employed would seem to antedate all others of this class that have been operated on in America, if not also in other countries. Another subject in gynecology worthy of special consideration is that known as Trendelenburg's posture. This subject has been most ably presented in a paper read by Dr. Florian Krug before the American Association of Obstetricians and Gynecologists for 1891.

The posture, as doubtless all are aware, consists in raising the patient's pelvis and letting the body slant down at an incline of 45 to 60 degrees to the horizontal. It was first employed by Prof. Trendelenburg, of Bonn, in supra-pubic cystotomy. Since the close of the year 1887 Trendelenburg has extended its use to gynecic surgery. In abdominal surgery it was first used in cases in which special difficulties in the deeper portions of the pelvis were to be encountered. The advantages offered by this method were shown to be so great that its use was finally extended to almost every kind of abdominal and pelvic operation. In its employment the operator is enabled to get a better view of the organs and tissues of the cavity in which his work is engaged. There is less risk of accidental injury to the structures beneath; injuries to the ureters and to the bladder can be avoided. Adhesions of the intestines to the omentum or to other parts can be overcome with greater facility and safety. Operation for the removal of the tubes and ovaries is greatly assisted by the adoption of this procedure. The abdominal viscera gravitate or fall toward the diaphragm.

Trendelenburg's posture does not interfere with the due administration of anæsthetics; in cases of hæmorrhage, syncope, or of extreme exhaustion its employment is of incalculable advantage. Dr. Krug has shown that a similar posture was employed by Fabricius ab Aquapendente in the sixteenth century. We learn that that eminent Italian anatomist and surgeon, in conducting treatment for cases in which strangulated hernia existed, first tied the hands and feet of his patients, then suspending them with the head low down, violently shook them in order to effect reduction of the hernia. It appears that other physicians before and since the time of Fabrizio had employed for abdominal trouble procedures not unlike those above described. Further researches show that this kind of proceeding is in fact only an extension or modification of the ancient mode of performing succussion, a representation of which has been given by Vidus Vidius in the Venetian edition of the works of Galen, and a description has been preserved in the Hippocratic treatises on articulations. When the spinal gibbosity or hump is below the neck, ac-

⁵ Boston Medical and Surgical Journal, Vol. cxvi, p. 429, 1887.

cording to Hippocrates, succussion with the head downward, as it was thought, is most likely to be of service. The patient was placed upon a ladder well padded with leather or cushions, he was then fastened at the ankles and at other parts of the body to the ladder with some firm but soft bands and with other appliances. The ladder upon which the patient was secured was then hoisted either to a high tower or to the gable end of a house, sometimes the ladder was lowered from a tower or from the mast of a ship, and the ladder was fastened at its base with cordage or with other means. In certain cases of sudden occurrence of injury Hippocrates admitted that the spine might be rectified; he rather praises the principle, though he says succussion was chiefly practiced by those physicians who seek to astonish the mob. To such persons, he says, these practices appear wonderful; people always extol such practices and never give themselves any concern as to the final results. Hippocrates further says that those physicians who practice succussion were for the most part a stupid class. In referring to the above I would not be understood as underrating in any manner the importance of Trendelenburg's posture. I have referred to it rather to show that this measure of proceeding, like many others of great value, before reaching the proper place for usefulness, has not been unregarded as an expedient of doubtful utility. Whenever for any considerable length of time Trendelenburg's posture in a laparotomy case is to be employed, precaution in the changing or discontinuance of it should be taken to prevent dangerous or fatal syncope. In a case of laparotomy in which I was in attendance with Dr. G. W. Jones, January 3, 1893, the patient on being placed in a horizontal posture changed almost immediately into a condition which excited the greatest alarm. As soon however as the patient could be placed again in the Trendelenburg posture the cardiac, respiratory and cerebral centres began to give evidence of normal activities.

Another subject deserving of consideration is the relation of chronic hysterical mania to uterine or pelvic disease. There can be no doubt that many cases of mania occurring in the female are superinduced or at least are intensified by the existence of ovarian or tubo-ovarian disease. Gynecologists from their observation and increasing experience are coming to believe that alienists are inclined to overlook this fact or that they too often fail to appreciate the significance of certain local lesions. Though not wishing to make any unfriendly criticism upon the methods and management carried out by those who have assumed to act as experts in matters relating to mental and nervous affections, I feel nevertheless constrained to remark that the gynecologist should exercise all reasonable influence in directing those who have the care of insane females, to a greater study and investigation respecting the disturbing factors having their origin in the abdominal and pelvic organs. Combined gynecological operations is a subject which has of late been gaining much prominence. Recent advances made in surgery have enabled the operator to do much more at one sitting than formerly. Such combined surgical procedures are no doubt of almost infinite benefit to the patient, for by this means she can often be saved from much physical and mental suffering; valuable time can also be saved, and the expense incident to operations performed at different times can in large measure

be prevented. In cases of multiple lesions or diseased processes careful discrimination as to what shall be selected for one sitting cannot be attended otherwise than with the most satisfactory results. In a combination of which a difficult or tedious abdominal section may be an essential part, all things being considered it might be deemed best to defer to a later date other important surgical procedures. In a combination excluding laparotomy the operator should be governed by the patient's strength and by the time required for the proper employment of anesthetics. In a paper on combined gynecological operations contributed by Dr. G. M. Edbohl, gynecologist to St. Francis Hospital, New York, mention is made of nephrorrhaphy for movable kidney undertaken in combination with curettement for chronic endometritis and catarrhal salpingitis, also its being performed at the sitting with curettement and trachelorrhaphy. On another occasion curettement, shortening of the round ligaments and nephrorrhaphy were performed together. The same author regards curettement with salpingo-oöphorectomy for diseased tubes and ovaries as the simplest of the combinations into which an abdominal section enters. Curettement amputation of the cervix or trachelorrhaphy and shortening of the round ligaments is a combination most frequently called for. Next in frequency come anterior colporrhaphy and colpo-perinorrhaphy; also amputation of the cervix, shortening of the round ligament and perineorrhaphy. When curettement, amputation of the cervix anterior and posterior, colporrhaphy, perinorrhaphy and ventro-fixation of the uterus are indicated, the author referred to favors an operation in which all are done at one sitting, for the reason that when each is done singly the union occurring in the restored parts is liable to yield or to be overcome for want of other necessary supports. In all these operations the strictest antiseptic precautions should be observed and all improved methods of procedure should be enjoined. This plan of operating has evidently been productive of much success. In the present light of gynecic surgery it is easy to see why under the old *régime* of operating by piecemeal so little of importance for the comfort of the patient was accomplished.

Tubal or ectopic pregnancy as it is now called, has given rise to a vast deal of discussion. The causation of this condition has been variously considered. Mr. Tait's views at one time were regarded as authoritative. That writer, as others hold, believes that impregnation of the ovum normally occurs in the uterus; that in those cases in which the extra-uterine foetation occurs, the tubal cilia have been worn away, or destroyed by a salpingitis more or less severe. This view presupposes that the tubal cilia in their normal state act as an impassable barrier against the entrance of the spermatozoa. However plausible and engaging these views may often appear, they cannot be accepted as sufficient explanation for the occurrence of the majority of cases in which tubal pregnancy exists. Surgical and pathological records whether taken individually or collectively do not justify such a conclusion. In those cases of ectopic pregnancy, in which the tubal epithelium has been found destroyed or impaired, positive evidence has often been found wanting to show that that condition has been due to salpingitis. May not the impairment or the loss of the cilia be due to the new condition of things consequent on pregnancy?

The views which some of us learned in our student days, and which were forcibly enunciated by Prof. O. W. Holmes, that it is in the tube where the ovule first receives its fructifying or vitalizing influence, though much digression has been indulged in have not as yet been disproved. There are undoubtedly many factors which enter into the causation of the obstruction to the progress of the ovule. Entrance of the ovule into the uterine cavity according to G. A. Moses,¹ may be delayed from nervous influences, from shock or from organic changes in the tissues of the tube and from proliferation and ecstasis of the vascular tissue incident to the parturient state. In the treatment of ectopic gestation I have no doubt that we should all agree that as soon as the condition is fully recognized laparotomy should be performed. Though some evidence of late has been adduced tending to show that recovery after the occurrence of rupture may take place spontaneously it nevertheless appears that early operative interference affords the only safe course of procedure; leading gynecologists in all countries have advised this.

Cancer of the uterus is still receiving special attention by the German profession. Extirpation when practicable seems to be the only remedy at this time worthy of consideration. By recent advances in the technique and by the observance of strict precaution against sepsis the percentage of mortality has been greatly reduced. The statistics of high amputation or incision indicate that much success has of late been attained. One great drawback to the attainment of the highest success in operative interference is from failure in arriving at an early diagnosis. There is often displayed on the part of the medical attendant too much conservatism: or a hope is often indulged in that the disease may not be really malignant. The primary symptoms of the disease are often overlooked; the sanious discharge, the menorrhagia, the pain, the obstinate sciatica and other symptoms indicative of the presence of cancer are looked upon as the result of processes that are altogether benign in character. After the occurrence of the menopause the uterus should be regarded as a useless organ and a foreign body, for its functions at that time have ceased. Scarcely so can it be said of any other organ. Though the spleen is an organ, the importance of whose functions has been much questioned, it certainly acts at times as a diverticulum. After the menopause the uterus, with its appendages, will have appeared to have exhausted its activity. In accordance with a law that has been well recognized nature sets up eliminative processes. The uterus is tolerated (?) in position at best only by feeble props or supports. Accidents to the perineal tissue occurring during the parturient process should be looked upon rather as conservative than otherwise. The occurrence of these point to the way for vaginal extirpation that the surgeon should be ready to complete when cancer or other lesions appear, with which the uterine tissue has often been invaded. I have spoken thus much on matters relating to our work, and would have gladly extended my remarks to the discussion of other subjects of interest had there been more time for such disposal. Suffice it to say that the Gynecological Society of Boston should still continue to congratulate itself on the good work it has accomplished. Many interesting and important papers have of late been presented and much able

and valuable discussion has been advanced on matters pertaining to our charge. I exceedingly regret that much of the record of our work has been withheld from the medical journals owing to the enforced absence of our accomplished secretary. Against this we seem to have been unable to provide. We are looking forward for a greater activity; with the development of the infusion of new blood we shall expect to accomplish much more. The twenty-fifth anniversary is fast dawning; the proper observance of this will show that the founding of our society antedates all such special societies that have been formed in this and in other lands. I would recommend therefore that in due time some action be taken toward a due regard for this coming event. In the history of our society are interwoven many important movements; we foresaw at an early date the coming sentiment in regard to the status in the profession of the opposite sex. So notwithstanding the frowning by the majority of the profession outside of our number, we were the first to open the doors to the admission to membership of properly qualified women. Upon the wisdom of this measure I will not enter into any consideration. Our records show that women are still being added to our number and that the meetings to some extent are being graced by their presence and their intelligent discussion by on themes of much moment.

As I pause for a retrospect, I am saddened with the thought that many faces once familiar are no longer with us. When, however, I recall the names of Martin, of Warner, and of Bowditch, I am strengthened with pleasant memories. Martin, honest, true, a walking encyclopedia of medical and surgical lore; he did not hesitate to use to the best advantage his withering sarcasm in exposing shams and deceit. We shall never see his like again. Warner, bright and cheery, had an inexhaustible fund of humor; he could use his wit to amuse as well as to sting. Of Bowditch, I would briefly say that we loved and respected him for his great worth and for his unsullied honor. Others also, who in the years gone by, have added prominence and dignity to our meetings, I can now recall. Each has left a good record, a priceless legacy that has been an inspiration to me, and doubtless to most of you, who have had the good fortune of maintaining such long and intimate acquaintance.

RESULTS OF MILITARY SERVICE AS EXEMPLIFIED BY CASES FOUND IN THE NATIONAL MILITARY HOMES.

Read at the First Meeting of the Wisconsin Society of National Guard Surgeons, at the Milwaukee Military Home.

BY SURGEON WALTER H. LEIGHTON.

Gentlemen:—It would not be consistent, either with a proper respect for you or a fair consideration of the subject involved, to give you this paper without an apology, felt more by me than it can possibly be by you, for now, in the presence of my peers, I am weak indeed. Words fail to express the gratitude for the honor conferred by your attendance here—yet, in the presence of one of the most eminent surgeons in the world, judge of my embarrassment in attempting anything; but, as I have always been used to obey, I will try to do the very best I can, and hope that I shall be able to do that which will make

you feel repaid for the trouble you have taken to be with us to-day. If I succeed I will thank you, and the account will be fully settled. How little do we know of the long hours of anxious research and study of those *real* students who burn the midnight oil, that science may finally triumph over disease. The *minutia* is the real thing, but who of us can get down to it? Only one in ten thousand. No; we reap the advantage of the work of the tireless students, and often the searcher himself is lost sight of. But thank God, there are those who toil, and those who reap, and in God's providence probably each has his compensation. The one, glad that he can do a little; the other, in the firm conviction that God has allowed him to be the means of doing so much for his fellow-men. I should like to have been one to originate, or probe to the bottom, yet still I am thankful that with the vast improvement, the great advance of the present day, I am in it at all. The change, if not the advance, is great, and undoubtedly it will be found that the new is not all right, or the old all wrong; but still, on the whole, we feel sure there has been a forward movement. Blood-letting had its day, and went out as a snuffed candle, but doubtless, among the profession, there is a feeling that the angle or divide was too abrupt and sudden, and regret that the public sentiment rendered the practice almost disreputable, and that, for the benefit of humanity, it would have been better if a middle course had prevailed. Wonderful strides have been taken since Lister came to the front with his claims for aseptic surgery, yet if we are ever so unfortunate as to have another war, we shall as heretofore, in my opinion, be compelled to face all the mischief and evils inherent thereto, for advanced science can never obviate the results of exposure and privations, of the long and weary march, the night vigil on the lonely picket, or the malarial poison of the swamps—it cannot prevent, with our present knowledge, rheumatism, intermittent fever, cerebrospinal meningitis, or disease of the heart, liver or lungs, hernia, varicose veins, diseases of the nervous system and brain, for even now the causes of most if not all of these are still in dispute, and have yet to be proved. We cannot, even with our most advanced knowledge of sanitation, prevent disease in any great measure; at least, under the trying ordeals of actual war, nor can we prevent shock from wounds or injuries. We may perhaps by aseptic surgery, when it is convenient and possible, prevent in a degree inflammation, suppuration, and their concomitant evil results, and the ambition of our eminent Surgeon-General, Prof. Senn, for a man to be his own antiseptic panacea, is certainly original, and preëminently grand, but still we must always face nostalgia, shock, inflammation, ulceration, suppuration, necrosis, and the thousand and one remote results of camp exposure and camp life. The conditions and the surroundings on the battlefield must always be different than in private practice. Why let us look to one condition. We were often glad during the late unpleasantness to get men for assistant surgeons who had not even had the advantage of reading medicine with a country doctor, but (as tradition has it) had only taken care of his horse. Undoubtedly, knowledge of surgery and medicine has been gaining ground rapidly for the past twenty-five years, and to-day, the intelligent physician or surgeon who faces disease or wounds with long pre-

scriptions or meddlesome surgery, hoping by a shotgun policy to hit somewhere, is numbered with the errors of the past. Yet still we are faced by the fact that man must die. Therefore preventive ways will always prove more reliable than all cures put together. Gross has a passage in his *Manual of Military Surgery* of 1861, where he says: "The duties and requirements of military surgery are essentially similar to those of civil surgery."

Now gentlemen, I leave it to those of my peers who served in the late civil war to say (with all due deference to the great surgeon, Christian man and teacher who to have his name appended to my diploma is one of the greatest honors) whether the requirements of military surgery do not differ in a greater degree than those from civil practice. To be brief, I remember at the battle of Cold Harbor, to have been one of the assistants to one of the best surgeons (in my opinion) furnished in the late Rebellion, when unexpectedly the Rebels got a range of our field hospital, where we were operating for the resection of the elbow. The operator suddenly got tired, and turning to one of the assistants said, "Can't you finish this operation?" and without waiting for an answer gave up the knife, and he afterwards said in my presence, "By Jingo, he did that better than I thought he could." Circumstances must be different on the battlefield, and the advice of the revered professor of surgery, S. D. Gross, in his manual to young surgeons in 1861, is too good to be omitted here. He says: "The sole object which prompts me to publish this little book, is an ardent desire to be useful to the young physicians who have so hurriedly entered the volunteer service, perhaps not always with a full knowledge of the weighty responsibilities of their position. I pray the young men, into whose hands this manual may happen to fall, to be careful of the health and lives of the poor soldiers committed to their professional keeping. I exhort them to perform their duty as skilful surgeons and physicians, as men of courage and as Christians, in order that when they return to their homes and their friends, after the tumult and peril of war shall be over (if war there should unfortunately be), they may be able to render a good account of their stewardship, and so entitle themselves to their country's benediction. I would also exhort them in a special manner to take good care, not only of the lives of their countrymen, but also of their limbs mutilated in battle. Conservative surgery has, at the present day, claims of paramount importance upon the attention of every military practitioner. For, in the language of good old George Herbert:

"Man is all Symmetric!—Full of proportion one limb to another, and all to all the World besides! Each part calls the furthest brother, for head with foot hath private amity and both with winds and tides."

We of the past numbers, reverently regard this advice from an old and revered teacher. But, gentlemen, I am wandering away from my subject. I have endeavored to get together a few cases, and give you a paper to illustrate some of the results of military service, as exemplified by cases found in the National Military Homes—established by a generous people, and a grateful Government, for the disabled veterans of the wars of 1776, 1812, 1846 and 1816.

These Homes were first established in 1866, since which time there has been one built at Togus, Me.,

Dayton, O., Hampton, Va., Leavenworth, Kan., Santa Monica, Cal., Marion, Ind., and our own in Milwaukee, Wis.

More than \$2,000,000 are annually appropriated by Congress for their support, and about 25,000 veterans are cared for. The only requisite for admission is an honorable discharge, and the surgeon's certificate of disability, recommending applicant for admission on account of being unable to support himself by manual labor, upon which he is taken in by the Local Manager. The Homes are gaining rapidly in numbers, and it is calculated that they will continue to increase for ten years. The cost of medical supplies of the five branches of the National Homes, during the year 1889, was \$36,553.26.

Cost of medical supplies per capita, \$2.33. The number cared for at this Home during the year 1890 was 2,781, against 2,710 for 1889, and the average number present, and absent for 1891 was 2,420, as against 2,104 for 1889. The maximum was 2,050, the minimum 1,663. The amusements provided for the old veterans in Memorial Hall cover nearly all of the fall and winter months, and last year cost \$2,796, which is paid out of the Post Fund—nearly all of which money is made by the sale of beer on the Home grounds.

We have band concerts (by the Home band) in the open air, daily during the summer, which are attended by thousands of the best people of Milwaukee; and in winter there is a concert every Sunday evening in Memorial Hall. The Home library has over 5,000 volumes, and billiard, bagatelle and card tables are furnished for the veterans in the smoking-room. This too is paid for by the sale of beer, which in the opinion of the managers has proven effective in lessening intemperance, as it tends to keep the members at home, and so under control of the management.

The sanitary regulations are under control of the surgeon, and whatever suggestions are made by him, conducive to the health and cleanliness of the members, or other preventives of disease, are fully carried out. Weekly inspections are made of the members and quarters every Sunday, by the officers of the Home, also frequent week-day inspection by the surgeon.

Men with chronic diarrhoea or piles, and a good hospital war record, get good big pensions; while the veterans who served during the war, and came out with honorable bullet and sabre wounds (but no hospital record) receive the miserable pittance of two dollars per month. But to business. The first case to which I call your attention as preëminently suggestive, as a result of the war, is that of John Donahoe, Company G, Fourth Massachusetts Cavalry. It is a case of hypertrophy with dilatation (associate diseases), bronchitis and asthma. Although I think the so-called asthma is really dyspnoea caused by the heart trouble. He has never suffered from vertigo, and worked as a laborer until 1882, when he was obliged to enter the Home at Hampton, Va. The etiology of the case can readily be traced to heavy marching and the strain and excitement of battle. Another soldier of this Home is suffering from rheumatism and disease of heart, stenosis of aorta and hypertrophy, suffers much from vertigo, unable to go up or down stairs without difficulty, associate diseases—injury to spine and chronic gastritis. An exceedingly interesting case is that of

Nelson V. Day, who has hypertrophy and dilatation of the heart, with mitral insufficiency, associate diseases, rheumatism dislocates his left hip at will, cannot stand with eyes closed, cannot shut his eyes and touch his nose, absence of knee-jerk, want of coördination in movement—in fact, I have no doubt as to rapidly developing locomotor ataxia. Fourth case, Chas. Sounen, late of Company A, Thirty-fifth Wisconsin Infantry, enlisted in 1863, served three years. Has suffered ever since the war with rheumatism. I find hypertrophy with dilation and slight aortic stenosis, suffers frequently from dyspnoea and vertigo—associate diseases, neuralgia of face with angina pectoris; suffers much from rheumatism, being laid up four or five months at a time.

Gentlemen, I might go on indefinitely with these cases, as it is thought by some good authorities, that over fifty per cent. of all the cases admitted into the Homes, are afflicted with hypertrophy of heart, stenosis, etc. Not a few cases of tabes dorsalis are found in the Homes, and next year I will endeavor to give you, with other diseases, a tabulated statement or history of some cases, with results as to treatment, etc. But I know I must have wearied you already; and yet, feel that I ought to give you a short account of a case of which you may have already read in the newspapers.

The case of Henry Aulfuss, who was thought to have been murdered by tramps near the Home grounds last May. The man had been a member of the Home for a number of years, and when admitted, the physician's certificate claimed that Aulfuss was disabled by paralysis, but at the autopsy no lesion of brain or cord was found, and on looking up the man's hospital record, I found that about a year ago I had diagnosed his case as heart disease and rheumatism, which the post-mortem verified. The following was our report:

We found that the deceased, Henry Aulfuss, had received in some manner unknown to us from twenty to twenty-five scalp wounds, only three of which penetrated through the skull cap, the most serious wound being about three inches in length and cutting into the external table of the frontal bone. The internal table of the skull was found intact. The membranes were uninjured; no clot, or any evidence of disease or injury, was found in any part of the brain. The trachea was free from any evidence of injury, or any unusual secretion. On removing the lungs they were found to contain air, and floated on being placed in water. Both lungs were congested. On examining the heart, the right ventricle was found hypertrophied and the left fatty, and the walls very thin. The left ventricle contained clotted blood. Two small vegetations were found in the pulmonary valves. One of the most frequent causes of trouble here in the Home is alcoholism, but when we think of the temptations to which the young soldier was exposed, and the privations suffered and the hardships endured by the men who fought to save the country, we would fain draw around them the mantle of charity. One poor fellow in the guard-house said: "You have no business to blame us; you learned us the bad habit, and now we are reaping the results."

No doubt there is much truth in this, for if we consider the youth who, full of energy, fire and patriotism, rushed to the front in 1861 to 1865, many of them nothing but boys (prevaricating as to their

age to get there), and then remember the consequences, when the real life of the soldier began to dawn upon them; when they stood fast and firm through the dreadful carnage, and saw one by one of their comrades in arms (or even their childhood's playmates) drop out—then when the battle was won or lost, or stopped by the welcome shades of night, only to be renewed at dawn, can we fail to realize the shock to the young heart. Then perhaps, after a hurried dipper of coffee with the hard-tack, the inevitable detail for picket falls to the lot of the poor wearied fellow; is it to be wondered at that an artificial stimulant was necessary before he was able to take another step forward? No; and then the habit was formed, the appetite created which to many thousands was worse than the crack of doom itself. General Sherman said, "War is hell"—and it was. The deadly minie bullet was not the worst part of that hell. Let Uncle Sam continue to be grateful to his defenders, and take the best care possible of them in their old age. There is only a very narrow line between prosperity and adversity, between success and defeat; and they saved to the freest and best of Governments; a government for the people, and by the people, and money cannot pay for the boon.

Gentlemen, change in medicine and surgery should be governed by natural laws, but unlike other advances, it is often subject to the whims of ignorant professionals and the caprice of the community at large. So it is up-hill work for those who seek its improvement.

There are many set-backs, and progress is necessarily slow. Yet with all that we can look ahead, and find much to encourage. Disease in all probability will continue to flourish, in spite of the most advanced science; and although some enterprising Yankee may originate a sublimate filter to wear over the entrance to the trachea and œsophagus, to prevent the inhalation or swallowing of bacilli, yet the improbability of its success is still in the air. Therefore let us not forget that it has been the sad experience of the past, and is likely to be that of the future, that theories and speculations (however promising at first), have been abandoned one by one, and would fill quite a respectable burying-ground, while the utmost difficulty usually bars the way to progress. The road to knowledge has ever been a rocky one; and due praise should always be awarded to the prodger after the truth.

America ought to go to the front. And the claim that this country is young or poor, cannot longer be sustained.

The Government of this great and growing country should help forward the advance and growth of medical and surgical science, by means adequate to the importance of the subject involved. Its honor is involved, and what better use can its treasures be put to than the protection of its citizens against disease, and bring about this much wished for result; so that America, and not Europe, may be pointed to as the foremost of all the nations of the world in encouraging scientific research. We have among us men with the real keenness for such pursuits, and education fully fitting them for investigation; ripe in scholarship, only waiting for the opportunity when they can shake off the worry and drudgery of private practice, to take up the nobler pursuit of working in the interest of their fellow-men the world over. We

read nowadays of efforts to bring into the United States representatives of nations of the globe, so as to bring together the highest products of man; a place where can be gathered for the education of all the industry, energy, skill and character of the world's people. But I ask, where millions are spent for these things, because they bring monied wealth to the United States, where is the Government spending anything for surgical or medical science? Is it not time that the people should recognize the fact that without health, wealth is of no permanent benefit; that without a sound physical and mental organization, money is of no worth; that only with both, can men, women and children enjoy life and the pursuit of happiness. Is it not high time for our Government to encourage the advance of medical and surgical science, by protecting those who are ready, enthusiastic and qualified for this great work?

Let us hope, pray, and above all, work for this great object.

SARCOMA OF THE PONS AND GLIO-SARCOMA OF THE CEREBELLUM.

Read before the January, 1893, Meeting of the Chicago Academy of Medicine.

BY LUDWIG HEKTOEN, M.D.,
OF CHICAGO.

The following two instances of tumor of the brain are reported in order to increase the number of such cases recorded and described in medical literature.

Case 1. Sarcoma of the Pons.—This case occurred in the Cook County Hospital, where Dr. E. T. Edgerly ascertained and wrote down the clinical history as well as the results of the physical examination; the writer made the post-mortem examination and examined the tumor microscopically.

Man, single, baker, German by birth, 37 years old, was admitted to the Cook County Hospital of Chicago, April 5, 1890. He was his parents' only child; the parents were both dead, the cause of death being unknown. He denied having had any venereal disease, said that he drank beer in moderate quantities, and that he had never been ill before his present sickness, which began with headache three months ago, since which time he had been unable to work on account of the pain, which was of a dull persistent character, with nocturnal exacerbations, principally frontal, but often extending over the entire top of the head. Two days before admission he fell on the sidewalk in a fit of faintness, but did not lose consciousness entirely; he had been troubled with dyspepsia; the bowel and urinary functions had been subjectively normal. The patient on admission is mentally dull and a clear cut history cannot be obtained.

Present Condition.—Patient is well nourished; he lies in bed groaning and complaining loudly of pain in the head, which he grasps with his hands; the right eye is tightly closed, the left is half open; the pupil of the right eye is somewhat contracted, but both pupils respond to light. Movement of the eyeballs seem to be limited, particularly as regards motion upwards and to the left. The tongue is normal and does not deviate on protrusion; the lines in the face seem better marked on the right side. Physical examination of the chest and abdomen is negative; there is no ankle clonus; the patellar and cremasteric reflexes are normal; muscle reflexes are universally present; rough tests indicate the tactile sensibility to be much impaired, thus two points three inches apart cannot be distinguished on the hands or the feet; when half an inch apart on the tongue the two points cannot be separated. Taché cerebrale is very distinct.

Pulse 64, respiration 16, temperature 97.6°.

Ophthalmoscopic examination by Dr. Mary C. Fowler: The discs cannot be outlined at all, yet the vessels are not large and do not pulsate. This condition is more marked in the left eye than in the right.

April 12. Patient suddenly became unconscious while eating and unable to swallow the mouthful of food he had taken; the extremities became cold, profuse perspiration broke out on the skin and the pupils dilated. Patient is taking iodide of potassium in increasing doses.

April 14. Lies in stupor; requires catheterization; refuses food. Right pupil dilated, does not respond to light. Supra-orbital pressure arouses patient sufficiently to answer questions. The right side of the body seems to respond to stimulation more quickly than the left, and often he moves the right side in response to irritation of the opposite half.

At 8 p.m. Dr. Murphy removed a button of bone with the trephine from the skull on the upper end of the right Rolandic fissure. The dura was dense. An aseptic aspirating needle was passed into the brain in all directions from the trephine opening, but no abnormal fluids were obtained nor resisting body encountered. Replacement of button, suture. 12 p.m. Death.

CLINICAL CHART.

Date.	Temp.		Pulse.		Resp.	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
4-5-'90	97.6	98	64	66	16	16
4-6-'90	99	99	70	72	16	16
4-7-'90	98.6	98	66	58	16	16
4-8-'90	98.6	98.6	60	54	18	20
4-9-'90	98.6	98.8	60	58	18	16
4-10-'90	98	98.6	58	60	16	17
4-11-'90	98.2	98.4	56	54	24	20
4-12-'90	98	98.5	60	60	20	20

Section twenty four hours post-mortem:

The trunk cavities were empty. The heart was of normal size, the semilunar valves competent to water; the mitral and tricuspid orifices admitted three and four finger tips respectively; the endocardium was smooth and the muscular tissue firm and light greyish-red in color. The fossa ovalis presented many small perforations. The lungs contained much frothy and bloody fluid. The abdominal organs presented no special change, contained no tumors. In the scalp over the right parietal eminence was a curved incision and beneath the flap thus outlined was a circular opening in the skull containing an accurately fitting button of bone. The dura was free from thickening, the Pacchionian granulations were exuberant. The pia was quite universally adherent to the surface of both the vertex and the base of the brain. There were small clots of blood in the right Sylvian fissure at the base; there was a small clot along the postcommunicant artery, but the vessel itself was intact. In the region of the upper third of the right pre- and post-central convolutions, beneath the trephine openings, were many small punctures in the membrane and in the brain substance. There was some clear fluid in each lateral ventricle. The brain substance in the hemispheres was macroscopically normal and free from any focal disease. On the internal half of the ventricular aspect of each thalamus were slate-colored, slightly raised areas, and on the left thalamus was a gelatinous body as large as a flax-seed.

The choroid plexus and the pineal gland were thickened and the peduncles of the pineal gland contained some slightly discolored areas. The slaty areas in the thalami extended into the substance for about 1 mm. There were no areas of softening in the thalami or in the crura. The pons was larger than normal, but the enlargement was symmetrical, at the widest portion it measured 5 cm. across from right to left. In the central portion of the pons, inclining perhaps to the right, was an oval, firm mass, 3.5 cm. in diameter and 5 cm. long, the long diameter lying in a dorso-ventral direction. The tumor was but loosely imbedded in the pons, having no organic connection with the pontine substance, and on attempted manipulation it slipped out entirely. It weighed 17 grams; it was of firm consistency, greyish in color on the cut surface, with many small hæmorrhagic areas, old and young, scattered through its substance. The fourth ventricle was empty; the medulla and cerebellum were normal. The spinal cord was not examined.

Microscopic examination of the tumor, after hardening in Mueller's fluid, shows that it is made up of rather delicate, quite small round and spindle shaped cells, with distinct deeply colored nuclei, densely packed together; there are places consisting principally of round cells, and in other spots mostly spindle shaped cells are found; no distinct stroma can be made out, perhaps on account of the

dense crowding together of cells. There are a number of irregular spaces without any plain wall separate and distinct from the tumor structure; in some places the cells immediately surrounding these spaces are, however, much like normal connective tissue cells, often these spaces are quite empty; some contain red blood corpuscles only or corpuscles mixed with tumor cells; there are also found quite large areas consisting of blood infiltrating with the substance of the neoplasm; in such foci the fibrinous mesh-work is usually plain. At the margin of one of these areas of infiltration is seen a distinct, thin-walled blood-vessel, filled with blood which in one place seems to be breaking into the tumor. There are also found a few areas of amorphous, yellowish material. The areas of discoloration observed with the naked eye upon the caudal surface of the thalami consist of masses of round cells, irregular in outline and in size, some being large and some small, and a few seem to be intravascular; here the cells are large and not so closely aggregated as in the pons.

Diagnosis.—Round and spindle celled sarcoma of the pons; secondary foci in the thalami.

Remarks.—It will be seen at once that the symptoms presented by this patient are readily explained by the nature and the position of the intrapontine tumor. The general symptoms such as headache, attacks of fainting and ophthalmoscopic retinal changes, occur in tumors of the pons as well as in other parts of the brain. The headache was intense, of rather uncertain localization and well-nigh continuous. In view of the fact that the pain in such cases is situated in the dura mater, it might perhaps be more reasonable to speak of the headache in this case not as a general but as a focal symptom, due to local compression or irritation of some part of the fifth nerve, near its origin, this being the nerve which supplies sensation to the dura.¹ The varying intensity of many of the symptoms was due in all probability to the occurrence of hæmorrhages into the tumor, which would cause sudden increase in the intracranial pressure. Thus, for instance, the attacks of fainting would result from increased pressure or sudden irritation of the nerve tracts passing through the pons due to the hæmorrhagic extravasations into the neoplasm. The examination after death showed the presence of old and recent, large and small, foci of hæmorrhage into the tumor. In fact the variations in all the symptoms was undoubtedly caused either by varying intracranial pressure or by varying direct compression of important structures in the vicinity of the tumor dependent upon the repeated congestions and hæmorrhages. The rather slight evidences of motor and sensory disturbances during the time the patient was observed in the hospital are attributable to the nature and the position of the growth; it was circumscribed, not in any way infiltrating but rather displacing, and consequently its effects upon the surrounding structures would be due entirely to pressure. The rather indefinite ocular paralysis or paresis and the equally imperfect left hemiplegia was due to the gradually increasing pressure of the tumor upon the tissues around it. The paresis of left side of the body might, for instance, be caused by pressure on part of the tumor in the right upper third of the pons before the decussation of the pyramidal tracts or in the lower left third after decussation. The symptoms were not distinct enough to decide this from a clinical standpoint, and the position of the tumor in the central part of the pons gives no clue as to which part of the tracts would be most compressed unless, indeed, it be those in the right half.

¹ Wernicke, Lehrbuch der Gehirnkrankheiten, Berlin, 1883.

It will be observed from the temperature chart that the occurrence of hæmorrhage into the substance of the tumor was not followed by fall of temperature. Gerhard observed that hæmorrhage into gliomas did not like genuine cerebral hæmorrhage cause persistent lowering of temperature, and proposed to utilize this observation in the diagnosis of this form of brain tumor; vascular sarcoma consequently appears to agree with glioma with respect to the point mentioned. The sudden death may have been due to the operation of trephining; it might also have resulted from lesions of the vagus centres due to the tumor.

The varieties of tumors occurring in the pons are practically two, glioma and sarcoma; a third is formed by a combination of these two into gliosarcoma. Gummata, tubercular foci, parasitic cysts give rise to symptoms identical with those produced by true tumors. The glioma is more frequently met with than sarcoma. Starr² collected thirty-eight cases of tumors of the pons in children and youth; of these nineteen were tubercular, ten gliomatous, five sarcomatous, two gliosarcomatous, one cystic and one unknown. Glioma of the pons and the pons medulla transition usually take the form known as gliomatous hypertrophy; a name which Hun³ says was first proposed by Kümmel⁴ because the growth is not circumscribed but appears in the form of a diffuse hyperplasia of the parts affected, resulting in great increase in size and but little distortion of normal configuration. This name, gliomatous hypertrophy, has been used by quite a number of writers in reporting cases, and among them may be mentioned Hun³ and Spitzka.⁵

Gee and Percy Kidd⁶ termed the same condition gelatiniform enlargement of the pons in their description of cases in the St. Bartholomew Hospital Reports. Glioma is nearly always an infiltrating tumor. Histologically it consists of branched neuroglia cells many of which may be multinucleated; it takes its origin from the neuroglia and grows by proliferation of its cells; as it grows it infiltrates the brain substance, and nerve fibres and ganglia cells swell up and disintegrate as they become encroached upon, though both these elements may persist surprisingly long.⁷ It is consequently a really destructive growth in many instances.

Gliomata are frequently telangiectic. Klebs⁸ maintains that the nerve fibres and ganglion cells take part in the proliferation, and he consequently calls the tumor neuoglioma. Spitzka⁹ describes an excellent instance of neurogliomatous hypertrophy of the pons medulla transition which in parts showed actual destruction of nuclei and nerve fibres; compact nerve strands seemed to present resistance to its destructive efforts, while ganglionic and capillary districts favored its extension.

Sarcoma of the pons may occur as an independent growth, unattended by neuroglia proliferation, and it is thought to be developed from the sheaths, or the actual walls, of blood-vessels. As in the present instance they usually present rounded, extremely loosely connected, sharply defined masses of various sizes; sometimes they possess a distinct vascular

membrane. The histological structure does not in any way differ from that of sarcoma elsewhere, and when hæmorrhagic foci are present in great number the vessel wall will usually be found to consist of embryonal connective tissue. When some gliomatous structure is present, then the tumor is usually spoken of as a gliosarcoma, and it may manifest the infiltration tendency usually observed in the glioma. Thus Simon¹⁰ reported a case of gliosarcoma of the pons which consisted of small round cells, neuroglia cells and in places large cells, with a manifest tendency to infiltrate surrounding structures. Most authors expressly state that sarcoma of the pons is not infiltrating as a general rule (Zeigler, Wernicke, Eichhorst); Henoch,¹¹ however, details an intra-pontine sarcoma which presented no sharp boundary, but which seemed to extend diffusely into the substance of the pons from a number of minute foci secondary to the principal mass.

While glioma and neuro-glioma of the pons as well as of other parts of the brain usually appear single, sarcoma tends to give rise to vascular metastasis, which is also shown in the present instance in the secondary foci in the thalami, some of which are quite distinctly intra-vascular.

Case 2. Gliosarcoma of the Cerebellum.—The following case was in the Cook County Hospital in a homœopathic ward in the spring of 1890, but there is no record extant of the case from that time, and consequently I can only give such clinical facts as have been gathered from family and friends after the patient's death.

Man, age 45, was in good health up to May, 1885, weighing 200 pounds and of imposing physique. At about that time he was engaged in raising an old building, and his son crawled under the building; fearing some injury he attempted to drag him out and during his efforts the building fell, striking him on the back of the head and the neck and driving his face into the sand. Owing to his great strength he was able to extract himself, producing in so doing lacerated scalp wounds. He recovered from his wounds and did not complain of any pain until the following winter, when he suffered for several months with severe headache which was diagnosed by his attending physician as neuralgia. The summer following he did his usual work, but he never seemed quite well. The second winter the pain in the head returned, was principally occipital, and this time it was worse than before; he also had vertigo and nausea. The remissions in the headache grew shorter and the attacks longer, and from this time (1888) until his death July 5, 1890, the pain in the head steadily increased until he at last died from exhaustion. For a short time before death he was totally blind. He was treated from time to time in hospitals, by ordinary practitioners and by authoritative specialists, under various diagnoses, a favorite one being spinal meningitis; he was blistered and burnt and received all the anodynes in the pharmacopœia. The above facts were obtained principally from Dr. Charles Caldwell, of Chicago, to whom I am greatly indebted for the request to make the post-mortem examination. The doctor adds: I knew him personally for many years, but I never had him under my professional care. I have never in a practice of twenty-five years' duration seen any one suffer such terrific pain as did this man.

The post-mortem examination was made twenty-seven hours after death. The neck and head only were examined.

Examination of the cervical spine, of the cervical portion of the spinal cord and of the organs of the neck was negative. The calvarium was free from any change; the dura was very tense and could not be pinched up into a fold anteriorly near the crista galli; there was no fluid in the subdural space; the brain filled the cavity completely, the convolutions were much flattened, the sulci apparently obliterated. The pia showed uniform injection of its vessels, large and small, and at a little distance it presented a rosy or pink color. It was not adherent to the dura, but it peeled from the cerebral surface with difficulty. On removing the brain, clear fluid spouted like a fountain

² M. Allen Starr, Medical News, July 12, 1889.

³ Hun, Medical News, October 1, 1887.

⁴ Kümmel, Zeitschrift für Klin. Med., B. 2, Heft. 2, Berlin, 1883.

⁵ Spitzka, N. Y. Medical Journal, March 27, 1886.

⁶ Angel Money, London Lancet, May 12, 1883.

⁷ Zeigler, Text-book, 1887.

⁸ Klebs, Vierteljahresschrift für prakt. Heilkunde, 125, 133.

⁹ Spitzka, Loc. Cit.

¹⁰ Simon, Zur Casuistik der Tumoren der Pons, 1887.

¹¹ Henoch, Charité-Annalen, V, 1880, p. 461.

stream from the vicinity of the base beneath the hypophysis. Inspection of the brain shows uniform pinkish color due to vascular injection; this is the case both in the dorsal and the ventral portions. The brain substance is very firm, the encephalic cavities contain much clear, almost colorless fluid and they appear enlarged, dilated; the velum over the third ventricle is distended and appears like a greyish band; the fourth ventricle is empty; the oblongata seems compressed. Underneath the tentorium is seen a hard, nodular projection from the left cerebellar hemisphere, it is covered by a thin stratum of cerebellar substance and by thickened pia in which run large, tortuous vessels. To be more accurate—it is found that the postero-superior lobe of the left hemisphere is occupied by an oval tumor, presenting a projection beneath the tentorium. The long, or dorso-ventral diameter of this tumor is 2, the short or verted $1\frac{1}{2}$, and the transverse $1\frac{1}{2}$ inches; it encroaches some on the vermes, *i. e.*, beyond the median line; it is everywhere surrounded by cerebellar substance which dorsally is very thin, and in the thickened pia are numerous large, tortuous vessels, especially around periphery of the tumor projection. The cut surfaces of the tumor show areas of hemorrhage of irregular size and age, large and small districts of homogeneous, greyish-yellow gelatinous substance in a bed of firm, whitish-grey tissue. The tumor seems simply imbedded in the cerebellum, it has no distinct capsule, and yet it has no distinct connection with the cerebellum except the vessels seem to pass into it on all sides—especially, however, from above. It cannot be said that there is much softening around the tumor.

Microscopical examination shows this tumor to consist of various kinds of tissue. In places, especially at the peripheral portions, it is composed of branching cells like the neuroglia cells; the fibrils are delicate and the cells small with large nuclei; in an occasional cell more than one nucleus is seen. In the central portions there are areas of pure round cells without projections and in every way like the cells in round-celled sarcomas; then again there are more or less homogeneous areas without any definite cellular structure; there are also foci, composed of granular brownish pigment and blood corpuscles as well as areas of recent hemorrhagic infiltration. The vessels are numerous and large, comparatively speaking, with many saccular dilatations, and the vessel walls are all very thin and, in places, are simply canals, containing blood, without distinct walls; in two places blood is seen in the act of passing into the tumor through the embryonal wall.

Diagnosis.—Telangiectatic glio-sarcoma.

Remarks.—In this case one interesting feature is the apparent causal connection between the injury and the development of the tumor. Quite a few cases presenting just as distinct, apparent traumatic origin, if not more so, are found in the literature. Eichborst records two cases in which a sarcoma of the cerebellum and a glioma of the pons followed injuries to the head in two boys, resulting in death one and one-half and eight months respectively, after the trauma. Curschman, cited by the same author, observed a sarcoma develop at the site of an injury causing a fracture of the skull. Starr remarks that there seems to be no doubt that blows and falls on the head may cause intra-cranial tumors, and in fact many writers attribute the frequent falls of children on the back of the head as explaining in part the greater numbers of tumors in the posterior cranial fossæ in early life.

The fact that the tumor has developed immediately after and is apparently the result of an injury is thought by Bramwell to suggest that it is either a syphilitic growth, a sarcoma, a glioma, or a scrofulous tumor.

The length of time intervening between the receipt of the trauma and the appearance of symptoms in the case described, was about six or eight months; during this time the tumor may have been latent, the general symptoms being due to the gradually increasing intra-cranial pressure and the encroachment of the growth upon the vermes, because

it is only when this portion becomes affected that vertigo, nausea and vomiting and other symptoms, more or less characteristic of cellular growths, appear.

Death in this case undoubtedly occurred in coma in consequence of the continually increasing intra-cranial pressure.

Anatomically the tumor appears to be a quite typical example of glio-sarcoma with large and embryonal blood-vessels, and consequently presenting a favorable condition for the occurrence of hemorrhages, congestions and areas of softening, with the sudden exacerbation of symptoms usually observed on this account in similar growths; exacerbations which by some authors are utilized in the differential diagnosis between the various kinds of tumors, because they can only occur in vascular or telangiectatic growths, such as sarcoma and especially the soft varieties of glioma. This tumor illustrates well also the production of internal acquired hydrocephalus due to pressure at the base of the brain upon the veins of Galen, and perhaps upon the passage between the third and fourth ventricles.

119 Loomis St.

A NEW KNOT TYER.

BY A. H. CORDIER, M.D.,

OF KANSAS CITY, MO.

In doing abdominal and pelvis surgery much valuable time is often expended in tying sutures and ligatures in the recesses found in these localities. Feeling the necessity of some device to minimize the time in doing this difficult part in this class of surgery I have devised an instrument known as the "Cordier knot tyer." The working of this instrument has proved to fill in every respect my greatest expectations. Its application has a wide range and will I trust prove to be as invaluable to others as it has been serviceable to me.

I will briefly mention a few of the many operations in which this instrument can be used to a good advantage in saving time and doing good execution.

In a vaginal hysterectomy where the uterus is fixed and it is impossible or unadvisable to drag the organ down within easy reach and where the operator is using ligatures on the broad ligaments or even in the vaginal vault, where the sutures are introduced to stitch the peritoneum to the cut edge of the vagina as is recommended by Martin, the application of the tyer here is indispensable.

If an artery is divided in an inaccessible locality, to tie with the hands, the tyer will quickly secure the vessel and permit of the forceps being removed at once. In vesico-vaginal fistulæ the sutures can be tied in an incredible short period by the aid of the tyer.

In performing an Emmet's operation on the cervix in a small vagina or on a cervix that is not within easy reach and where the operator is using silk or catgut or even silver wire or silk worm gut, the knot can be run up and tightened as quickly as if on the surface of the body.

In performing the Eastman operation or total abdominal hysterectomy, the instrument is indispensable as a time saving device.

In supra-pubic cystotomy for the removal of tumors or an enlarged prostate of ligatures or sutures are to be used, the operator is certainly working to a great

disadvantage without an instrument of this kind to do the tying quickly.

Where the surgeon is operating to remove an impacted gall stone in the cystic or common duct and it is found necessary to split the duct over the site of the stone, the tyer will aid him very much in tightening the sutures when he comes to closing the opening made in this canal.

In the small capillary bleeding hæmorrhoids where the hæmorrhage may be so great as to endanger the life of the patient, the quickest and surest procedure is to ligate the small raspberry like tumor; the tyer here is of much service, making a tedious procedure very quickly and easily performed. This variety of hæmorrhoidal tumors is usually situated high up in the rectum. Allingham has well said, "The secret of the well being of your patient (in ligating internal hæmorrhoids) depends greatly on this tying—a part

the blades (see cut) is the loop carrier, which carries the loop down to the exact place where the surgeon desires the knot to be tightened, this carrier holds the loop or knot stationary while the blades are being separated and the knot tightened. The ends of the ligatures are held in the left hand of the surgeon. As soon as the knot is tightened down on the vessel or the suture is so secure that it will hold its place the carrier automatically retracts. The sutures may be tightened even with more force than it is possible for the hands to stand without the ligature cutting the fingers.

These are a few only of its many applications. The tyer is manufactured by Wm. H. Armstrong & Co., Indianapolis, Ind.

Kansas City, Mo., 1024 Walnut St.

SKIN GRAFTING UPON THE CRANIUM.

Presented before the Chicago Medical Society.

BY FREDERICK C. SCHAEFER, M.D.,

OF CHICAGO.

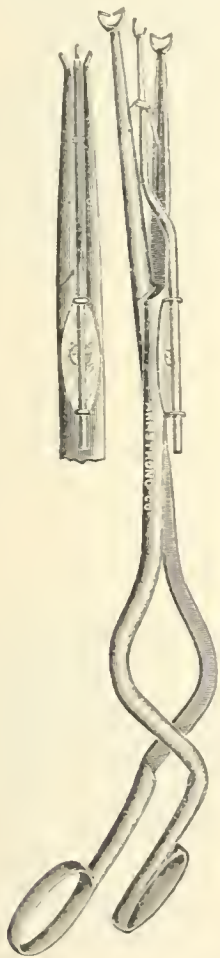
PROFESSOR OF CLINICAL SURGERY, NORTHWESTERN UNIVERSITY MEDICAL COLLEGE; PROFESSOR OF SURGERY, WOMAN'S MEDICAL COLLEGE; SURGEON TO WESLEY HOSPITAL.

The patient I present this evening has been cured for five years. I exhibited her before the American Medical Association in the spring of 1887, when the new scalp covered about three-fourths of the skull. In September, 1887, the case was reported in the International Medical Congress in Washington. At this time there remained an open spot upon the head corresponding to the dimensions of a silver half dollar; a month later this was also covered. The scalp is complete and has been in this condition ever since November, 1887. It may now be appropriately entered upon record as a cure.

Since the subject of skin grafting was first introduced by M. M. Reverdin and Frank Hamilton, innumerable and varied trials have been made to close wounds by this procedure, with variable degrees of success, all over the civilized world, but an extensive search of the medical literature gives very meager information concerning skin grafting upon the cranium.

This young lady, twenty-four years of age, was at work in a laundry under a revolving shaft, July 9, 1886. The shaft was between four and five cm. below a heavy beam, and about twenty-five dm. above the floor; it was making 225 revolutions a minute, as computed by the engineer. The girl was said to have reached up for something on the wall, when the wind blew her hair toward the shaft; instantly she was drawn against the beam and shaft, and fell back to the floor without her scalp.

The narrow space between the beam and shaft doubtless saved her life. She then walked up stairs (the accident occurred in a basement), where I found her sitting in a chair moaning piteously, presenting a most ghastly, heartrending appearance. The entire skull was laid bare, from the margin of the eyelids to the neck. The nasal bones were uncovered and broken, exposing the superior nasal meatuses. The skin of the eyelids was removed from within three mm. of their edges. The border of the wound was traceable from the lower portion of the left external angular process of the frontal bone and margin of the left upper eyelid, downward and backward below the left ear, which was entirely removed; thence the



of the operation by no means easy as all practical men know, to effect."

Of 29 cases of spleenectomy 14 died directly from hæmorrhage and 3 from shock. The difficulty in tying the vessels and the great shock produced by dragging on the pedicle can be avoided by the use of the tyer. The application of the instrument has a wide range.

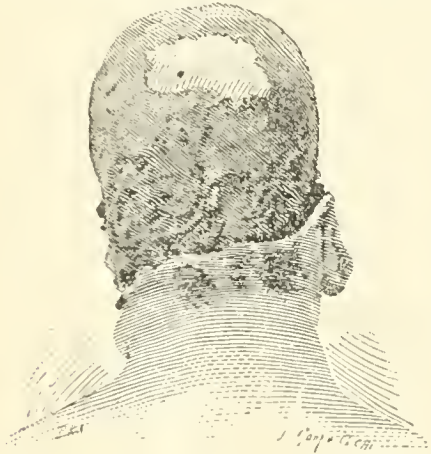
The tyer as the reader will see by the cut has the same arrangement governing the movements of the blades as is used in the Knott's detent dilator. The carriers have automatic threading ends, this permits the ligatures to be quickly placed in position to be tightened as soon as the handles are closed. Between

wound extended across the neck five cm. below the superior curved line of the occipital bone, and could be traced forward through the lower third of the right auricle, to the right external angular process of the frontal bone and margin of the right upper eyelid, across the right lid, nose, and the left lid to the point of commencement. The superior border of the left zygomatic process was broken, exposing the cavity within the process. Every vessel and nerve supplying the scalp was torn off, and the pericranium was lost in three places; one spot, corresponding to



the center of the forehead, was oval in contour and measured 5x7 cm.

The other exposed surfaces of the bones were located on either side of the calvarium, on the corresponding parietal and temporal bones; were elliptical, eight cm. long, six cm. wide. The neck flap of the wound fell away from the muscular structures beneath it, exposing the trapezius muscle almost halfway to the shoulder-blade. The trachelo and sterno-mastoid muscles were also uncovered, the latter to the extent of seven cm. The right ear was



torn through its lower third, and hung at the side of the neck by an isthmus of skin less than five mm. in width. The exposed surface of the wound measured forty-five cm. in length from before backward, and thirty-nine cm. in width near its central portion. The sutures of the cranium were distinctly seen at several places. There were only a few muscular fibres left upon the head—a portion of the temporal muscles on either side, and the levator palpebrae muscles in the orbits. Hemorrhage was profuse; the tem-

poral, occipital and posterior auricular arteries had to be tied.

I came to the patient within three-fourths of an hour after accident occurred. Controlled hæmorrhage, examined the scalp, wrapped the head up in carbolized gauze. The scalp was thoroughly mangled and covered with fragments of hair on its inner surface, which had to be removed. In order to save time, I sent for my friend and neighbor, Dr. J. D. Skeer, to assist in the immediate treatment of the case. Dipped the scalp in warm carbolized water,



picked off the broken hairs from its inner surface, and cut off the hair from the outer surface, while Dr. Skeer prepared the head for the reception of the scalp. Together we freshened the edges of the wound, stitched the scalp back by continuous suture, and sewed the right ear in its position. Applied iodoform over the entire suture, and coiled small narrow sacks filled with warm sand about the head to keep the scalp warm.

After three days, uncovered the head and cut



through the scalp in several places to let out the pus which had accumulated beneath it. On the seventh day removed all dressings. The scalp was now permeated with gases of decomposition, and baked firmly against the calvarium in many places. Removed it. The right ear was warm and joined at the sutures. During the first three weeks we had little hopes for the patient's life. Her pulse varied from 90 to 130 per minute, while the temperature fluctuated between 100° and 140° F. Was delirious about

three weeks, having lucid intervals; her head had to be propped up with pillows. After the second week her neck became stiff, the muscles were rigid, neck turning to one side. To overcome this tendency, had the bed turned so that it became necessary for the patient to move her neck in the opposite direction. Also had her exercise the neck by rotating and bending it. The optic nerves were extremely sensitive. Vision weak at $\frac{1}{20}$. She complained of noises in

lation tissue, the others near the edge of the wound upon the eyelids, where there was the least suppuration. The head at this time was covered with granulations from the pericranium, excepting in places where the periosteum was lost; these were gradually covering in also, from their margins. The grafts were held in place with fish skin, and the bandages were permitted to remain in position forty-eight hours, when the four grafts upon the vertex presented

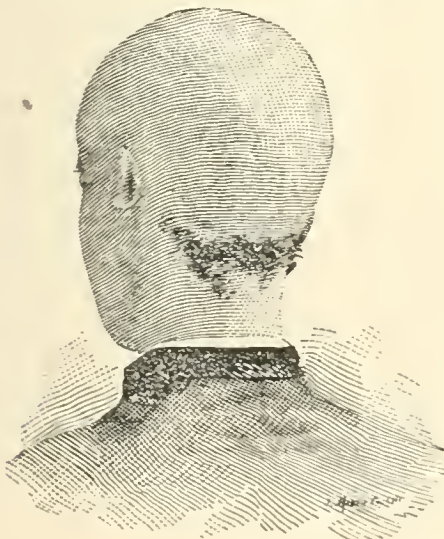


both ears. Hearing distance, right ear, $\frac{6}{40}$; left ear, watch C. During the fifth week she left her bed and walked about the room.

Six weeks from the day the accident occurred, I concluded that skin grafting might be most promising of satisfactory results. Suppuration was very



a pink color, and five of the grafts over the eyelids were washed away by the pus. I then attached eighteen grafts, eight on top and ten near the margin, as before. After another forty-eight hours all on the top of the head were pink, the four previously planted were spreading. Those near the margin of the wound remained also, but did not look as good.



free at this time, and the patient was too feeble to permit of any treatment requiring extensive operative procedure. I therefore, on the 15th day of August, took thirteen epidermal grafts from the flexor side of her sister's arm and placed them upon the patient's eyelids four mm. apart. By way of experiment, four of them were placed upon the center of the cranium in direct contact with the granu-



The constant accumulation of pus interfered with the growth of the marginal grafts. I was therefore lured on to place the greater portion of them near the vertex in semicircles, coming forward to meet those which were growing over the lids. October 12, my notes say there is a piece of transparent skin, thirteen cm. long and seven cm. wide, extending from the eyelids backward, besides twenty pieces, varying in size from a ten cent piece to a quarter of a dollar,

noon the sides. On the 15th of October, noticed, that the new skin began to liquefy in spots. October 17, 2 o'clock A.M., a copious hemorrhage occurred from one of the venous channels between the tables of the right parietal bone; the blood ran forward and to the left side, beneath the front half of the new skin, which was thus destroyed. A few days later the other half was perforated by many small ulcers. In ten days more it also disappeared. Over two months' work was destroyed in as many weeks. The amount of tissue lost would be represented in one piece by an oval measuring fifteen cm. by 11 cm., to produce which 915 grafts were required. Although somewhat discouraged by this disaster, we were not dismayed, but endeavored to retrieve our loss by vigorous grafting.

Having noticed that the skin derived from the epidermis, chiefly, was very thin, immovable and short lived, I resorted to *dermal* grafting, picking up each time, also, a few fibers of subcutaneous connective tissue. Suppuration having greatly diminished, all of them were placed about the circumference of the wound. About sixty-five per cent. lived. During this month, November, two irregular pieces of bone measuring 3x2 cm., were removed from the outer table, where the pericranium was gone.

December 1st, there was an irregular band of skin around the entire head, six cm. wide in front, and four cm. wide at the back and sides. The last two series of grafts did not thrive. Up to this time heterodermal grafts only were brought into requisition from her sister and three brothers. As the patient was now able to walk out of doors, she gained in strength, and the thought occurred to us—Dr. Skeer, who called to see her at this time, and myself—that tissue taken from her own person might do better than the heterodermal material. On the 24th of December, commenced taking grafts from her left arm. The rapidity of the growth of her own grafts was simply marvelous. For example: One day thirty were placed in a double row, set three mm. apart. In thirty-six hours they put on a pink color. Three days later they were joined in one piece. The connecting parts were slightly depressed, and of course quite thin. By the eighteenth day a few hair like vessels were detected in the new tissue. Eight times after our first misfortune, numerous ulcers started at different places. At one time there were eighteen of them. They were evidently caused by the contraction of the subcutaneous tissue, whereby the fine vessels were broken.

Many of the ulcers healed of themselves, but the larger ones were assisted by autoplasmic grafts; 4,500 grafts were planted, of which the patient supplied 1,800.

May 1, 10th month, there remained uncovered four spots, each a trifle larger than a silver dollar. I expected to complete the scalp in four weeks, when suddenly her strength gave out. She took a severe cold, suppurative inflammation of the left middle ear followed, the mastoid process became very tender, and a dozen new ulcers appeared; two large ones, each about twelve cm. long and from one to three cm. wide. The combined area of all might have been represented by a circle sixteen cm. in diameter. The patient was almost disheartened; she slept only three hours of a night for three weeks; her head ached, sight grew dim, and I feared leptomeningitis was about to occur. Gave her opiates and

tonics. After three week's depression she reacted, when grafting was resumed. Occasional discouragements have been met with since, but now she feels good; says the head and eyes seem as strong as before the accident occurred. Her hearing has greatly improved also.

From the beginning, the entire wound was treated antiseptically with carbolic acid, iodoform, and corrosive sublimate. It was dressed with strips of carbolized gauze prepared with 2½ per cent. solution. The strips were 6 cm. wide, 30 to 35 cm. long. A layer of them, which came in direct contact with the granulations, was anointed with vaseline, so that it could be readily removed, then a series of strips was superimposed upon each other; next a piece of lint covered on one side with vaseline was placed over these and external to the lint a roller bandage made of cheese cloth was wrapped about the head. This formed convenient and serviceable dressing. The lint and strips were easily removed. The interstices of the gauze, by capillary attraction, drew the secretion from the wound's surface; the lint prevented too rapid evaporation whereby the dressings were kept from baking against the wound. The outer bandage retained the other parts in place. Thinking the lint heated the head, by way of experiment it was left off; but each time the dressings were stuck against the cranium, so that they were removed with difficulty, therefore continued using it.

At first the grafts were held in place by means of a piece of fish skin, which after thirty-six hours began to liquefy, and could be removed with a sponge. Repeated experiments caused me to discard this. The fish skin would break down, commingle with the secretion and help to macerate the grafts. Next tried McIntosh dressing. This heated the tissue too much, and the grafts were often found floating in the fluid beneath it. Having observed that the secretion always clung to the gauze dressing, that as a rule the thicker the layer of gauze used, the less discharge remained upon the wound's surface, I concluded to place a pad of oiled carbolized gauze upon the grafts instead of the rubber or fish skin. This worked remarkably well. Six or eight thicknesses of gauze, extending two or three cm. beyond the grafts in all directions, were applied. This had the desired effect of absorbing the secretion, reducing the heat to a minimum, while the grafts generally remained in place. The grafts usually assumed a pinkish appearance in forty-eight hours. Occasionally a series of the autoplasmic grafts when the patient felt exceptionally good, would be almost pink in twenty-four hours. Many of them, however, gave no evidence of being alive until after seventy-two hours. Several times grafts which hung to the dressings, covered with serum after forty-eight hours, being replaced, took hold and lived.

The progress of the growth of the new skin was similar to the description of M. Riverdin. A narrow, one mm. zone of hyaline tissue, somewhat depressed, surrounded the grafts in ninety-six hours; this grew with variable degrees of rapidity until the grafts were joined, then it grew thicker. After three weeks, sometimes a few days earlier or later, fine vessels were traceable in this new tissue; these increased in size until the skin was literally a network of vessels. As they continued developing it was noticed that the larger ones were directed upward. Later some of them assumed very nearly the position of the

normal arteries, like the temporal, occipital, etc. Now many of them have a bluish color, being evidently veins. The grafts were derived from her sister, three brothers, and herself, aged respectively seventeen, nineteen, twenty-four, twenty-seven and thirty years. They varied in size averaging about four by three mm., the central portion consisted of the entire *derma* with subcutaneous tissue, the marginal portion comprised epidermis only. Simply a fold of the skin was lifted with the sclerotica forceps and hastily snipped with iris scissors. When removed their under surfaces curved inward. They were then spread out and laid in direct contact with the granulations. The peculiar form of the grafts seemed to exert a favorable influence upon them. Their inward curvature caused them to cling closely to the granulations and an immediate suction action took place. The patient said she could feel them draw as soon as they rested upon the head. I have no doubt that the empty vessels in the grafts expedited this process.

Many times grafts six by seven cm. were tried without success. Tissue with hair was also applied; but the hair bulbs atrophied. Ten to one hundred grafts were planted at a sitting. Most of the time twenty to thirty only were used. Usually two days intervened between the graftings. Frequently, however, several weeks' rest had to be given the patient, on account of her weak condition.

All of the skin from the margin of the superior eyelids upward presents the characteristics of the normal skin. It is pliable, soft and movable. The lower half can be pinched up in folds. It imparts a velvety sensation to the fingers when touched. Furrows with pores opening into them are plainly visible with the hand glass. Follicles are abundantly present.

Her head sweats freely all over, and the new skin feels to the patient like the skin in other portions of her body. The eyelids are somewhat retracted, less, however, than they were four months ago. The younger portion of the tissue appears quite red, myriads of small vessels can be seen in it. As the skin grows older, the smaller vessels gradually disappear from view; others appear larger; the integument assumes a more normal appearance as to color and consistency. It also becomes more movable owing to the development of subcutaneous connective tissue. One cannot see where the new skin begins upon the eyelids. The lids close perfectly so that the lady sleeps with closed eyes.

Our works on surgery give no statistics, although at different times such accidents have occurred in the manufacturing States of our country. After having written many letters to physicians for information, concerning cases which came under their observation or treatment, I received responses from two only. I have imperfect reports to give of six cases:

Case 1.—A girl, nineteen years of age, lost her scalp fourteen years ago, in the Elgin Watch Factory, Elgin, Ill. Dr. E. Powell, of Chicago, informed me that the wound extended across the forehead above the eyebrows and that her ears were not touched. Skin grafting was tried repeatedly in this case, with no results. Was told by a surgeon who saw her recently that one of her eyes was lost since by exposure occasioned by retraction of the eyelids.

Case 2.—Gross' "Surgery," last edition, makes mention of a young lady who lost her scalp in a factory in Philadelphia, 1869. He simply says the wound cicatrized over.

Case 3.—Reported in the "Surgical History of the War,"

Part I, p. 315. A conductor on the Union Pacific Railroad, was scalped by the Sioux Indians, near Cheyenne, in 1869. Wound as indicated by the illustration given, was elliptical, measured about 10x8 cm. A portion of the outer table of the cranium was removed. The wound healed over.

Case 4.—Reported by her employer, Mr. E. F. Smith. Miss Hattie Thomas, of Union City, Conn., March 29, 1871, in a button factory, placed her head under a swift running shaft, to pick up a button when her hair was caught by the shaft and her scalp taken off from the nape of her neck to her eyebrows. Her physician was Dr. S. C. Bartlett, now deceased. He cleaned the scalp and placed it upon the head about two hours after it was torn off, but it did not stay long. Then commenced skin planting. Had the head almost covered twice. Each time it was lost. A third effort proved successful in healing the wound, so that she was able to work after two years.

Case 5.—Miss Newman, Bristol, Conn., had her scalp torn off by her hair catching in the machinery in a mill where she was at work during the past winter. The entire scalp was gone, an eyelid and an ear slightly torn. She was treated by Drs. Wilson and W. E. Way, of Bristol. Result of treatment not given. "The Hartford Times" of last July, contained an advertisement for volunteers, to furnish skin for grafting.

Case 6.—Reported by Dr. W. W. Horton, of Unionville, Conn., June 12, 1885. Rosa Flynn had her entire scalp torn off by her hair catching in the shafting of a paper mill, Unionville, Conn. The scalp was torn from the back of the neck around, just above ear to the nose, taking the eyebrows. There was also flap torn down the right side of the face nearly to the mouth. I treated her for one month, then sent her to the Hartford Hospital, where skin grafting was tried. Both human and rabbit skin was used. It was a failure. Lids are retracted. The wound is still open. Hemorrhage occurs from the capillaries when her head gets on a lower level than her body. Expect the wound will cicatrize over in another year. It will be noticed that in none of these cases was the wound as extensive as in the one under consideration.

Deductions from experience in this case.

1. When grafts are set within five mm. of each other, a stronger skin is produced than when they are placed further apart.

2. A graft will grow to many times its dimensions, so that a circular graft three mm. in diameter will form a piece of skin eighteen mm. wide, but the skin will not be as strong or of as good a quality as when the grafts are closer together.

3. *Dermal* grafts with a few fibres of connective tissue form a smooth, soft, pliable, movable skin, presenting the characteristics of normal integument.

4. Epidermis placed on the cranium produces only a thin film, which ulcerates readily.

5. Auto-dermal grafts are more reliable than hetero-dermal grafts, providing the subject is healthy.

6. Grafts from a person near the patient's own age do better than from one much older or younger.

7. With *dermal* grafts the follicles are preserved, whereby the patient is made more comfortable, the skin produced is more natural, hence more durable.

8. The most reliable skin is formed by grafting about the circumference of the wound, say one or two rows, producing a narrow strip one cm. wide, and waiting until the blood vessels are well developed in it, then plant another series close to the last ones. By this plan, contraction in the marginal tissues takes place in advance of the subsequent graftings, diminishing the liability for the ulcerative process to occur by reason of such contraction.

9. The new skin is fed by the tissue upon which it rests, probably by osmosis, but depends for its permanent sustenance upon the vessels growing into it from the circumferential tissue. This fact is thoroughly established in my mind, as it was frequently demonstrated by the death of the patches of new skin removed from the marginal tissue. Time and ma-

terial can therefore be saved by constantly grafting from the circumference in large wounds.

10. All things considered, grafts will grow better in a new wound than in an old one; and the more recent the wound the more certain are they to thrive. In the present case, during the last three months, notwithstanding the improved physical condition of the patient, only twenty per cent. of the auto-dermal grafts took, while six months ago eighty-five per cent. could be depended upon.

582 Washington Boulevard.

DOMESTIC CORRESPONDENCE.

PHILADELPHIA LETTER.

The fortnight of Siberian winter which prevailed during the early part of January, has been succeeded by a genial thaw, which has filled the streets with indescribable compost, and the air with germs and moisture. Diphtheria and scarlatina are still with us; but are on the decline. No cases of small-pox or of typhus have appeared in this city for many months, but typhoid fever and phthisis claim entirely too much prominence in the weekly death returns. The City Board of Health is not as fully sustained by public sentiment as it should be, and in fact has been criticised for the continuance of diphtheria, of which there have been from ten to twenty cases daily. It probably should have done much more; but it has had difficulty in securing sufficient funds for properly carrying on its work. The method of dealing with contagious disease in the city is as follows:

All practicing physicians are required to report every case of contagious disease (not including consumption) within twenty-four hours, under a penalty of \$50 for neglect.

So soon as a case of diphtheria or other contagious disease is reported, no matter what the circumstances of the family may be, a medical inspector is promptly sent to the place to make an inspection. If he finds that it is a case which cannot be properly cared for at home, he sends it to the Municipal Hospital, and institutes proper measures for disinfection, and holds the place under observation until the period of incubation of the disease has passed. If the disease is one which does not require such rigid measures, he holds the case under supervision during its entire continuance. It is his business to supply families with circulars, giving plain instructions as to the management of the disease from beginning to end, and after convalescence; or after death, should it occur.

A medical inspector is sent to coöperate with the medical attendant in all necessary precautionary measures, and, if disinfection cannot be properly carried out by the family, a disinfectant is placed in charge of the work, the disinfectants, chloride of lime, liquid carbolic acid and sulphur, being furnished gratuitously. If there are children in a family where contagious disease exists, it is the practice to notify the principal of the school where the children attend, to that effect. A patient is always isolated and the family cautioned to prevent intercourse with the house. When this advice is not taken, and where there is a lack of confidence of the ability of a family to carry out sanitary measures, it is the practice to place watchmen before the premises to see that the instructions of the Board are complied with.

The Board, also offers freely to the poor the use of disinfecting chambers and cremation furnaces at the grounds of the Municipal Hospital, for disinfecting such articles as cannot be done at home. The rules governing the burial of bodies are strictly enforced. The medical inspectors, of

whom there are 15, are giving the greater part of their time to the supervision of diphtheria cases, while five disinfectors are employed to purify houses where diphtheria is prevalent.

The Health Officer, Major Veale, has to contend with doctors who are loth to report contagious diseases until the cases terminate fatally, and with others who hold to the theory that diphtheria and scarlet fever are not contagious. He thinks that there ought to be a building, or series of buildings, where persons who are liable to contagion could be taken and kept under observation, their homes in the meanwhile being thoroughly disinfected. The city at present, generally speaking, is in a fair sanitary condition.

There is a movement now on foot to establish a special hospital for the treatment of diphtheria, or of infectious diseases other than small-pox, for which a Municipal Hospital already exists. Provost Pepper of the University, has come out with a strong appeal in the *Public Ledger* from which we take the following paragraphs:

"When will the people come to be willing to pay for the inestimable blessings of preventive medicine? Do they not know that modern methods of isolation and disinfection enable us to prevent the spread of infectious diseases, if the patients are placed under proper conditions? The germs of these infectious diseases retain their vitality and their virulence for a long time. They attach themselves to furniture and clothing. They are carried by physicians, by nurses, by relatives. Infected linen is sent to the laundries, and a fresh centre for the spread of the disease is created. Cases in families, after arriving at a hotel, develop. There is no suitable place to send the patient. The occurrence is concealed as far as possible. Isolation is impossible. Disinfection is imperfectly carried out. The germs of the disease remain in the apartment and may also be diffused widely. So long as there is no attractive, properly constructed and well administered special hospital for contagious diseases, with isolation wards for each of the chief affections, it is impossible for the community to escape the grave consequences of their neglect.

"The Municipal Hospital answers an excellent purpose, but there is needed in addition a special hospital, more centrally situated, with accommodations adapted to the various classes of patients, and with a staff of attending physicians of large experience in the treatment of these diseases. There need be no objection to the location of such a hospital near the centre of large cities. A sufficient space should be secured, but it would not require an extensive tract. Proper construction and careful administration would remove any chance of the disease spreading in the neighborhood.

"The prompt removal of each case of contagious disease from hotels, public institutions and as far as possible from private residences to such a hospital would effect a vast saving in life and in the risk of the disease spreading. As a matter of fact, the well-to-do classes will not allow one of their family to go to the Municipal Hospital save under the constraint of law, in the case of small-pox. As a further matter of fact, it would be essential that all respectable physicians in the community must have the privilege of attending patients whom they may send to such a special hospital as is here urged. Otherwise it would be idle to hope for the coöperation of the profession or the support of the community."

This proposed hospital has met with general favor among physicians and Dr. Robert B. Cruice has made the suggestion that, as the Government has no further use for Fort Mifflin, this island in the Delaware would provide an admirable location for a hospital for infectious diseases. Thus far, however, no steps have been taken towards carrying out these important suggestions.

While discussing hospitals, it should be noticed that the friends of the late Prof. D. Hayes Agnew have concluded, very opportunely, to erect a memorial ward at the hospital of the University of Pennsylvania, devoted particularly to the treatment of surgical diseases and injuries of children. This memorial seems especially appropriate, since Dr. Agnew was known to be opposed to the post-mortem

vanity of statues and monuments; and, although his marriage was childless, was very fond of children. The "D. Hayes Agnew Memorial Children's Ward" will probably hold from thirty to fifty beds. The sum required will be \$150,000, of which two-thirds are expected to remain as an endowment, and the remainder to be expended on building and furnishing. A permanent association has been formed, which will shortly address an appeal for funds for this purpose, to the friends of the late Dr. Agnew, in different parts of the world. Joseph G. Rosengarten, Esq., of this city, is the secretary of the organization.

The recent election of Dr. George E. DeSchweinitz as Clinical Professor of Ophthalmology, at the Jefferson Medical College, by the Board of Trustees, is considered an eminently proper appointment and both the new incumbent and the College can be congratulated. The Alumni Association of the Jefferson College, however, has had its attention directed by the public press to the fact that Dr. DeSchweinitz had hitherto been identified with the University of Pennsylvania; and furthermore that the trustees had given no notice of their intention to hold an election, so as to allow the alumni of Jefferson a chance to compete for the prize.

Attention has also been directed in the public prints to the alleged preponderance of University influence in the Jefferson faculty and to the custom of filling vacancies with university graduates. It does seem rather hard upon the specialists who fill subordinate positions and work for many years in dispensary and clinic, to find that when their reward is almost within their grasp, it is tantalizingly withdrawn and handed to an alien; and not even to a brother alumnus. At the annual meeting, held Jan. 14, Dr. W. W. Keen in the chair, however, the whole matter was happily dismissed by adopting the following resolutions:

"WHEREAS, Resolutions have been circulated among the alumni of the Jefferson Medical College and given wide newspaper publication, conveying the impression that they were an official utterance of the Alumni Association of the Jefferson Medical College, and conveying the inference that the faculty and Trustees of Jefferson Medical College are not conducting the affairs of the institution in accordance with principles of loyalty to the college and its alumni, and thereby had incurred the hostility of the Alumni Association, be it

Resolved, That the Alumni Association of the Jefferson Medical College, in annual meeting assembled, tender a vote of confidence to the faculty of the Jefferson Medical College for their energy and activity in furthering its best interests; for their efforts to maintain its high standard of medical education, and for their cordial coöperation with the alumni of the college in advancing the mutual interests of the institution and its graduates; and to the Board of Trustees of the Jefferson Medical College for the wise and progressive character of their present administration."

The resolution was adopted without discussion, as was also a resolution declaring it to be the sense of the Alumni Association that it would be to the best interests of the college if there should be representation from the alumni upon the Board of Trustees.

The association elected these officers: President, Dr. W. W. Keen; Vice-Presidents, Dr. J. C. Wilson, Dr. J. M. Barton, Dr. Morris Longstreth, Dr. John Fay Allen, Dr. J. F. Sauwers, of Germantown; Dr. J. A. Lippincott, of Pittsburg; Dr. Thomas Addis Emmett, of New York, and Dr. S. L. Kurtz, of Reading; Corresponding Secretary, Dr. Richard J. Dunglison; Recording Secretary, Dr. Orville Horwitz; Treasurer, Dr. E. L. Vansant.

A State Board of Medical Examiners for Pennsylvania is among the possibilities of the near future. The Medical Society of the State of Pennsylvania has approved the bill which is now before the legislature, and which the following is an abstract:

I. The Board shall consist of nine members, graduates of

some legal medical school, "no two of whom shall be residents of the same county, and none of whom shall be a member of the faculty or staff of any medical school or university."

2. The members shall be appointed by the Governor by and with the advice and consent of the Senate.

3. All physicians commencing practice in Pennsylvania after July 1, 1893, "shall be examined in anatomy, physiology, chemistry, pathology, hygiene, toxicology, differential diagnosis, surgery, and obstetrics; and each applicant, upon receiving from the secretary of the board an order for examination, shall draw by lot a confidential number, which he or she shall place upon his or her examination paper, so that when said papers are passed upon, the examiners shall not know by what applicant said papers have been prepared, and upon each day of examination all candidates shall be given the same set of questions."

4. The examination papers and marks shall be preserved and shall be open to public inspection in case of dispute. "No one shall be excluded or rejected on account of adherence to any special system or school of practice."

5. "Each applicant who shall have passed a satisfactory examination shall receive from the said board under seal a license to practice medicine and surgery in the Commonwealth of Pennsylvania."

6. "Nothing in this act shall be construed to prohibit service in cases of emergency or the domestic administration of family remedies."

7. The applicant shall pay an examination fee of ten dollars and "in case of failure at any examinations shall have the privilege of subsequent examinations without the payment of an additional fee."

With consistent unwisdom the members of the homœopathic sect in this locality, it appears, are actively opposing the bill; which does not interfere with the modes of practice; but merely pertains to the essentials of medical education. Is this a confession of incapacity on the part of homœopathic educational institutions; or is it an acknowledgement that the less of medicine a candidate knows the more likely he is to belong to the homœopathic ranks? The daily papers are almost without exception unanimously and enthusiastically in favor of the bill, because "it treats the graduates of all medical schools alike; and makes competency and honesty the only qualifications."

A hospital for the chronic insane is now building near Wernersville, under the direction of a Commission appointed by the State. Dr. Thomas G. Morton, Chairman of the Lunacy Committee of the State Board of Charities, made an address at the ceremony of laying the corner-stone, November 29, 1892. In this address he stated that this is the first institution for the treatment of the chronic insane in Pennsylvania. Inasmuch as many of these patients are harmless lunatics and chronic demented, who do not require restraint and would be benefited by open air exercise and light labor, Dr. Morton argued that their separation from the acute cases would afford immediate relief to the overcrowding of the five existing State hospitals. Moreover, as these patients require less attendants than the acute cases, this plan would be also in the interest of economy as well as of humanity. The State has appropriated the sum of half a million of dollars for the purchase of ground and the erection of the asylum, which is to be on the plan of a parallelogram of semi-detached buildings with the latest improvements in hospital construction. The place selected has long been celebrated as one of the most attractive health resorts of the eastern slope of the Alleghanies, and is in proximity to the city of Reading.

"The Medical Club of Philadelphia" is the name of a new social organization which has just been formed. Its laudable object is to encourage among the members of the profession a more friendly and intimate social acquaintance. The discussion of refreshments of various kinds, it is hoped will take the place of the stereotyped medico-scientific subjects, which are excluded by the articles of the association. Dr. J. H. W. Chestnut is President, Drs. P. D. Keyser and

H. A. Hare, Vice-Presidents; Dr. Lemuel J. Deal, Secretary; and Dr. Roland G. Curtin, Treasurer. About three hundred physicians have signified their intention of connecting themselves with this society, and are putting themselves in training for post-prandial elocutionary honors.

At the January election at the College of Physicians, Dr. S. Weir Mitchell was re-elected President.

The friends of Professor Roberts Bartholow will be glad to be apprised of his return to health and to his practice, as announced editorially by the *Medical News*.

The coroner of Philadelphia has at last furnished the frightful example that the comic papers have long been instituting inquiry for. A boy, 13 years of age, who was said to be an inveterate cigarette smoker, who smoked constantly during his waking hours, was attacked by a violent headache one morning, and this was followed by severe convulsions, which terminated fatally. A verdict of "death from convulsions from excessive cigarette smoking" was rendered, according to the daily papers, which however fail to state whether or not any lesions were discovered in the brain at the post-mortem examination. Without the autopsy it would seem that something would be required, even more potent than the authority of the coroner, to establish a positive diagnosis, or even a diagnosis by exclusion, of death from cigarette smoking.

The report of the Philadelphia Cremation Society shows a steady growth of public sentiment in favor of incineration. Since the establishment of the Society there have been 186 incinerations, divided as follows: During 1888, 14; 1889, 28; 1890, 31; 1891, 51; 1892, 62. There are 205 certificates now in force.

Revision of the Code of Ethics.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Dear Sir:—The writer's letters to THE JOURNAL of January 14 and 28, in answer to "INQUIRER," consist of detailed statements of the reasons why he considers revision of the American code unwise and inexpedient, but now it becomes necessary to state some facts connected with the history of the repudiation of the Code, and with the present status of the advocates of the movement, which has proved so beneficial to the profession in the city and State of New York. The text for these remarks is suggested by an editorial in the *Medical News* of January 28, 1893, but the writer will give first the result of an examination of certain sentences, contained in the *News* editorial of September 17, 1892, not before criticised. These will be quoted and commented on to show that their author has received wrong impressions or has been misinformed.

1. The dissatisfaction with certain provisions of the Code says the author of the *News* editorial of Sept. 17, 1892, expressed itself in the State of New York, especially, to such an extent that one of the most important sections of the Code—one, indeed, which has done more than any other to maintain the dignity of the profession—has been repudiated." A dissatisfaction is expressed, but no reason is offered in explanation, no argument is made to give it form, and no just cause for it is assigned. A few persons are dissatisfied because they are dissatisfied, therefore the world must and shall satisfy them at any cost! This is substantially the kind of reasoning that appears with their demand, and the author of the *News* editorial seems to think that something must be done to appease the wrath of individuals who cannot say why or whence their choler and general discontent. A few disaffected physicians repudiate just and time honored laws, and gather around themselves others who know little or nothing of these laws, blindly follow their misguided leaders, and adopt new laws which tend to

lower professional dignity. Not content with this, they are now striving to disorganize the national body that made the laws, which they seem to consider too strict. The author of the editorial acknowledges that the part of the Code which is sought to be abolished, *i.e.* the consultation clause, "has done more than any other to maintain the dignity of the profession." Notwithstanding this acknowledgement, he wishes to substitute for this clause one which, in letter, is but a very imperfect representation of the original!

2. Another statement in the editorial is as follows: "The antagonisms, produced by this act of repudiation on the part of the *Medical Society of the State of New York* have led to bitter dissensions, and created for a time a serious division in the profession." Until the year 1882, the profession in the city and State of New York was harmonious. A few years before that time, ten or twelve physicians formed a cabal which they extended to the State society and which resulted in the repudiation of the American code, and the adoption of a "new code." Had the dissenters stopped at this point, a simple protest would have been made, but they insisted that the whole profession in the State should adopt their "new code," bitterly denounced all those who differed from them, and spoke in the most disrespectful terms of the National Association in public medical gatherings, in medical journals, and even in newspapers. This was naturally resented by the defenders of the Association in the city and State of New York. The extent of the division of which the editorial speaks was ascertained at the time, for in 1883, the State was canvassed with the following result: Five thousand and two physicians received each, a communication asking certain categorical questions, of this number, 3,826 sent corresponding answers; 34 sent indefinite replies, and 1,142 did not reply. This leaves for "no code" and the "new code" together 1,279, and for the National code 2,547, or within a small fraction of, two to one, in favor of sustaining the Nation's code. In the year 1883 this was the extent of the division of the profession in the State of New York. Since then many of the uncommitted and of the "new code" adherents, have declared themselves in favor of the National code and many more will doubtless do so when they have studied critically the American code.

3. Again the editorial says: "This division, however, is now practically healed, as far as the individual relations of members of the profession in New York are concerned"; . . . This is not strictly correct, for the leaders of the "new code" movement are now as bitter as ever in their denunciations, but the rank and file have already begun to realize that they were easily led into error—by misrepresentations—owing to their want of knowledge of the provisions of the Code, which they do not regard as a set of oppressive laws.

4. The same editorial contains the following: "One familiar with the Code contest in New York nine years ago, in looking back, must recognize the fact that this contest led to action that the majority of the partisans of the two sides would now willingly modify." It is evident from the above sentence, that the author of the editorial, is not familiar with the history of the contest to which he refers. The defenders of the American code, consider that they have acted in good faith in this defense and that they have not been guilty of any act that, in truth, can be characterised as unbecomingly honest and loyal members of the profession, and that therefore there is nothing that requires modification. They stand as firmly as before in the support of the Code. The author of the editorial speaks of "partisans of the two sides." The defenders stood where they had always been, and made their protest, when the public overt acts of the disaffected, came to their knowledge. There was only one set, that deserved the name partisan, for the members thereof adhered closely and fanatically to a faction, and

opposed most vehemently, and traduced, the National Association. These crafty partisans, by sundry dark devices, have long been striving to induce some unsuspecting delegates to take steps toward causing the abrogation of the Code, and have succeeded so far as to bring about the revision proposition; their objective point being the consultation clause, whose suppression they hope to effect in case of failure, to set aside the whole of the Code. If the author of the *News* editorial had been familiar with the "code contest" he would have understood the real motive of the revision proposition and would probably have written a very different editorial, for he is loyal to truth and justice.

5. The author of the editorial speaks for the National code supporters, but evidently without warrant. "The supporters of the Code would now be willing to see it stripped of useless provisions and redundant language, to say the least." It does not appear that consistent supporters of the Code are likely to wish it stripped of what it has not; they would be most illogical to express any such desire, especially after the announcement in the *News* editorial that the "general sense of the profession" is favorable to the Code as it stands.

6. What may now be the views of the majority of those who, years ago, endorsed the "new code," the writer does not know absolutely, but he believes that if they will honestly devote one hour each day, for a week, to the study of the American code with Dr. Flint's commentaries, they will be most likely to abjure the "new code" and adopt the American code.

7. The author of the editorial is now axiomatic and says: "It is time for the adherents of scientific medicine to come together and stand on common ground." This is devoutly hoped for, if he means that the common ground shall imply a common medical faith as expressed in the existing morals of the National Association. If the great majority, or if all of those who so unwisely opposed the national ethics will for a time set aside the self-love, which has probably prevented an acknowledgment of wrong, and band in unison with the national confraternity, with the one laudable object of sustaining scientific medicine, then the American medical profession, with its 100,000 members, will surely exercise an immense power for the good of individuals as well as of the whole nation. Therefore let the same zeal animate all, that the general good may become the good of each, for, divided, though the dissenters be in the smallest minority, the profession can have but little influence with the people, the great masses of which are now led astray medically, by ignorant and crafty charlatans of all sorts; many of whom are liable to become members of State Legislatures, and to make bad laws for the profession and for the people.

8. The editorial very properly suggests "leaving agitators and belligerents in the background. There is no doubt that the agitators and belligerents, *i. e.*, those who so persistently opposed the Nation's code of medical morals, should be left in the background if they refuse to submit to these laws, as there is no other punishment for them but to be left in the background.

9. The author of the editorial further says: "We believe that the great majority of those who have repudiated the Code have no desire to degrade the profession to the level of those classed as irregular practitioners, or to meet such practitioners on terms of professional equality; but rather that they honestly believe in the right to render their services to all, whether the patient be at the moment under the care of a physician or of an irregular practitioner." Whatever may be their desire, they can degrade only themselves by obstinately acting contrary to well established laws. The profession could be degraded only if the majority of its members should be guilty of persistent violation of these laws.

10. The defenders of the Code will doubtless thank the author of the editorial for the following, which appear to be the first conciliatory words he has uttered in their behalf. "We believe also that the defenders of the Code resisted its modification on the highest moral and professional grounds." The defenders of the Code were actuated by the sole motive of preserving law, order, and good professional conduct. They maintained that the standard of medical morals can never be too high. The author of the editorial thinking, very properly of course, that the defenders had done nothing more than their bounden duty, metaphorically pats their backs, saying, Well done, worthy defenders, but you must yield to the evil doers. Like some righters of wrongs, he is for encouraging the erring minority, and for forcing the loyal majority to compromise the honor and dignity of a great National organization, in order to satisfy the unjust demands of this wrong-headed minority. This is the inevitable logical conclusion of the case.

11. The writer's examination of the *News* editorial of September 17, 1892, leads him to believe, that its author has been too hasty in expressing views which do not appear to have been based upon an exhaustive study of so grave a question of morals as is involved in this discussion. It is hoped that this author, whose editorial shows sincerity and honesty, will re-examine the whole subject, that he will study Dr. Flint's book on "Medical Ethics and Etiquette," and then frankly state his conclusions in a new editorial.

12. A few remarks will now be made in respect of the *News* editorial of January 28, 1893. The author of the editorial asserts that the Code "contains unnecessary matter that obscures its meaning, and that its provisions fail, in certain respects, to meet the present requirements of the profession." Will he be so kind as to make and publish a convincing argument that the Code "contains unnecessary matter that obscures its meaning, and that its provisions fail, in certain respects, to meet the present requirements of the profession?" Will he also please to say, which of these provisions fail, etc., and which are the obscure provisions, wherein lies their obscurity, what it is that he fails to understand, and what are the present requirements of the profession, particularly of that "formidable minority," in respect of moral laws? Will he pardon the writer for saying that, after long and careful study of the Code, he has failed to detect the obscuring redundancy and the defects to which the author alludes, but that, on the contrary, he has found the Code definite, distinct, easily understood, and pregnant with meaning and most salutary precepts. Perhaps these qualities have rendered it objectionable to its repudiators.

13. The author of the editorial says that he "should approve of the Code as it is, were it not that there is a vigorously expressed dissatisfaction with it on the part of a formidable minority of the profession." The bare assertion of dissatisfaction is not sufficient, this minority should state why it is dissatisfied, and what is dissatisfying in the Code. What may be expected of this minority, when it ceases to demand but more becomingly requests, has been stated in the writer's letter to *THE JOURNAL* of January 28, 1893. If the Code must be revised, because this is demanded by the "formidable minority," what is to be done with the majority which prefers that it shall not be revised? But suppose that the "formidable minority" should become the majority, this would still leave a "formidable minority" in favor of the Code as it was, and this minority would have the same right to demand its restoration. If this could happen, when would revision end, and when would there be harmony? Is it just and proper that all the other States in the Union should yield to the whim of one State when the grandest moral principles are assailed by that State? Can the author of the

editorial show that there is the faintest spark of equity in the position taken by the opponents of the code?

14. The assertion "blind adhesion to the Code" is in keeping with the "expressed dissatisfaction." The defenders of the Code do not blindly adhere to it, but approve it because they are fully aware of its literary merits, and of the great value of its moral precepts, from having studied it long and critically. The majority of those who repudiated it, knew very little of this Code, and many confessed that they had never read it, while others boasted they would never do so.

15. The writer offers an apology to the author of *The News* editorial for having unintentionally misquoted him in one regard, in the letter to *THE JOURNAL* of January 14, 1893. This inadvertence is scarcely pardonable, but the writer trusts in the generosity of the editor of *The News*, who will kindly convey to the author this poor explanation.

16. Before closing this communication the writer will state a few additional facts relating to the status of New York, in respect of representation in the National Association. When, in 1884, the Medical Society of the State of New York still persisted in advocating the "new code," despite the remonstrance of a large majority of the members of the profession in the State, the defenders of the American code organized the New York State Medical Association in order to secure to New York a proper representation in the National Association. This new Association has since grown to be a power in the State, and now numbers over seven hundred and fifty active members eligible as delegates to the American Association. This statement is now made because many members of the National Association, are under the impression that New York is entirely disfranchised. In accordance with the rules of the American Medical Association, the New York State Medical Association is entitled to send seventy-five delegates annually, and all of its 750 members are eligible to permanent membership.

17. *The News* editorial of Sept. 17, 1892, talks of the exclusion of "able, eminent, and honest co-workers," as if ability, eminence, and honesty could not be found outside the domain of its specified "able, eminent and honest co-workers." The country in and out of New York, is full of able, eminent and honest men who prize the National code of morals. Among the members of the New York State Medical Association, not far from one hundred have been, or are professors or instructors in the medical schools of the city or State of New York. Many of them are authors of eminence in medicine, surgery, obstetrics and gynecology. A large proportion of the members are connected with public institutions, and are performing valuable work for the relief of human suffering and for the advancement of science. During the nine years of the existence of the New York State Medical Association over four hundred essays of a high order of merit, have been read before this Association, on medicine, surgery, obstetrics, gynecology, materia medica, therapeutics, physiology, pathology, hygiene, State medicine, toxicology, medical jurisprudence, insanity, bacteriology, organic chemistry, etc. In the meetings of this Association, no time is devoted to the discussion of ethics, nor is there any such need, for all the members are agreed on the ethical question.

18. The writer has lately seen a list of the members of a local society whose headquarters are in the city of the New York. This society, organized in 1884, under the title of the New York County Medical Association, is in affiliation with, and makes an annual report to, the New York State Medical Association as is indicated in the transactions of this Association. The number of members of this County Association is eight hundred and five, and is said to be rapidly

increasing. In the list of members may be noticed the names of the most eminent physicians and surgeons of New York City. Therefore, the whole of New York State is not disfranchised, and it has an abundance of "able, eminent and honest" workers who are loyal to the National Association.

19. The preceding and following statements should dispose definitely of the cant about "able, eminent and honest co-workers." The diffusion of knowledge is such in this free country that talent does not now need a metropolitan stamp to be recognized. The great universities of the South, of the central part of the Union, and of the far West, have developed genius, in a relatively greater proportion within this decade, than have done those of the Eastern and Middle States in the last half century. "Able, eminent and honest" workers are to be found in abundance everywhere in this land. The disaffected eminent workers must reform, try to be just, or take the "background."

20. The American Association is warned, that the proposed revision of the Code is only a subterfuge to cause the abrogation of the consultation clause. If this clause had never appeared in the document, most probably the question of revision would never have been raised. It now becomes necessary for the Association to suppress the rising disaffection in its ranks, remembering that reformation is too often undertaken only when abuses have become extreme, and that then it is generally futile. It is when an evil is embryo that it should be stamped out forever, or its eradication is no longer possible. Let the American Association then, beware of the hydra of disaffection that unceasingly rises from the depth of distorted minds; that has already shed its venom of discord over one State, and that may spread it throughout this broad land, unless the reptile is speedily destroyed. The demon of the Code heresy will surely renew its onslaught in some form or another after it is believed to have been exorcised. Again and anon will the same or similar turbulent and evil spirits assert themselves with nefarious intent. Therefore, let the Judicial Council—the guardian of good order—be ever on the alert, ready for exorcism, and let the Association raise its mighty voice and annihilate the monstrosity with truth and justice.

A CONSERVATIVE MEMBER.

SOCIETY PROCEEDINGS.

American Electro-Therapeutic Association.

Second Annual Meeting, held in New York, October 4, 5 and 6, 1892.

WILLIAM J. MORTON, M.D., PREST.

FIRST DAY OCTOBER 4—AFTERNOON SESSION.

(Continued from page 131.)

The want of time forbids any elaborate discussion of the physical causes of the two opposite liquid currents, the endosmotic and the exosmotic currents, produced by osmotic action. Suffice to say that they are now generally recognized to be more complex than they were formerly believed to be. They depend, apparently for their action, among other causes, on the phenomena of simple diffusion as modified by capillary action, on the affinities of the liquids for each other or for the septum, and, in some as yet not thoroughly understood manner, on the action of electric currents. So far as the influence of diffusion and capillarity are concerned they depend on intermolecular action, resulting, through the inter-action of cohesion and adhesion, in surface tensions.

Let us now examine what occurs when an electric current is passed through two liquids across a porous wall or

septum which separates them, that is, when the liquid and the septum form part of an electric circuit. Under such circumstances a movement of the liquid takes place in the direction of the current; or, in other words, the level of the liquid rises on the side of the negative electrode and falls on the side of the positive electrode.

Calling as before, the endosmotic current that which is directed towards the higher level, then the electro-endosmotic current is that which passes through the septum in the same direction as the electric current.

Now regarding the skin and other membranes of the human body as septa, if electrodes moistened with medicinal substances, such for example as a soluble iodide, cocaine, quinine, etc., be applied to different parts of the body, and an electric current be passed between such electrodes, a flow of the solutions placed in or around the electrode takes place in the direction of the electric current, by means of which said solutions are carried into the tissues of the body. The introduction of drugs or medicaments into the human body by such means is called cataphoresis, and I have been asked to state the principles of cataphoresis from the standpoint of the physicist.

The task is a difficult one for the following reasons: Even if the physics of the phenomena of simple osmose were thoroughly understood, a discussion of the causes and phenomena of electric osmose would be a matter of considerable difficulty, since the introduction of the electric current would considerably modify the results. But when to the complexity arising from the introduction of an electric current into the problem, is superadded the complexity arising from the effects of vitality, of modified nutrition, of alterations in the contractility of the tissues, the results are so profoundly modified that the study of the phenomena of cataphoresis from the standpoint of the physicist only, or, in a more limited manner, from the standpoint of the electrician only, must necessarily fail of its best results unless supplemented by the study both of the physiologist and of the practicing physician.

The exact causes of the phenomena of simple diffusion are by no means thoroughly understood. The fundamental causes of the phenomena of electric endosmose in non-living matter are still involved in dispute. The causes of the phenomena of cataphoresis, or electric endosmose in living matter must, therefore, of necessity be involved in considerable obscurity.

The effect of an electric current passing through a tissue of the body in determining a flow of liquid through such tissue in the direction of the electric current was first ob- by Reuss of Moscow, and afterwards by Porret, who called it electric endosmosis. It is now sometimes known as Porret's phenomenon. Porret observed that when an electric current is passed through a living, fresh, sarcoous substance, the contents of the muscular fibre at once take on a flowing or streaming movement in a direction which is the same as that in which the current is assumed to flow; viz., from the positive towards the negative pole, and that there results from this movement a swelling of the fibre at the negative pole.

The problem is still further complicated by the belief, that has existed for a long time, that the phenomena of simple osmose are invariably attended by the presence of electric currents. If this is true, and it certainly appears probable, then the presence of such currents cannot be without its influence on osmotic phenomena.

According to Graham, a chemical action on the material of the septum invariably attends osmotic action. For this reason, the phenomena are practically absent in neutral solutions, and are most marked in acid and alkaline solutions. In the case of a membrane of ox bladder, Graham

found that the loss of weight of the septum in various experiments varied from 20 to 40 per cent. according to the character of the solution, the kind of septum employed, and the time of duration of the experiment. In the case of such mineral septa as unglazed earthenware, he found alkaline solutions to produce a greater action than acid solutions, because they exerted a chemical action on the septa.

Since chemical action produces electrical currents, it is not improbable that such currents are produced whenever osmose occurs.

But an observation of Graham renders the presence of electric currents in all osmotic currents almost certain. He asserts that one of the surfaces of a membrane or septum through which osmotic action is taking place is invariably acid, while the other is basic, and that this state is invariably connected with the progressive decomposition of the substance of the septum. In other words, the membrane is polarized; an electro-motive force exists which is definitely directed, and presumably, electrolytic decomposition takes place.

But apart from such consideration it is a well-known fact, that when a liquid is forced through the capillary pores of a porous wall or partition, electric currents called diaphragm currents are produced. That is, the phenomena are interchangeable.

Take for example the case of the capillary electrometer, in which a drop of sulphuric acid is placed in a capillary tube filled with mercury. When a current of electricity is passed through the mercury across the drop, it will cause the drop to move in the same direction as that in which the electric current is flowing. If, however, when the electric current is absent from the tube, the drop of liquid is forced to move by the application of pressure, then a current of electricity is produced which flows in such a direction as would tend to move the drop in the opposite direction to that of the motion it is forced to take by the pressure. As you are probably aware, an operative electro-capillary transmitting and receiving telephone has been constructed on these principles.

Since ordinary osmose is attended by the forcing of liquids through capillary spaces, there must, it would seem, be set up electro-motive forces as the results of such liquid flow, and these electro-motive forces would presumably tend to oppose such liquid flow.

The cause of the electric current produced by the motion of the drop of sulphuric acid is generally explained as follows: The contact of acidulated water and mercury possesses a definite surface tension. The two liquids do not, however, actually touch; a small interval or space exists between them. This space acts as a small accumulator. Since different liquid substances are in contact, they acquire different potentials. If the shape and contact of these surfaces are altered by any means, the capacity of the condenser is altered, and consequently an alteration occurs in the difference of potential. The mere shaking or heating of the liquid in such a capillary tube will, therefore, be attended by the production of electric currents. Conversely, an electric current sent across such contact surfaces will produce motion from the change in the value of the surface tension.

But apart from the question as to whether or not there exist electric currents or differences of potential in the case of ordinary osmotic phenomena, there is no doubt that the passage of an electric current from one liquid to the other, through a septum which separates them, causes a modification in the value of the endosmotic current. In most cases it increases such current; according to the observations of Napier, the direction of endosmosis is changed by changing the direction of the electric current.

When flowing in one direction, therefore, the electric current adds to the ordinary endosmotic current a liquid current of its own; when flowing in the opposite direction, it opposes or reverses the direction of the endosmotic current.

Napier alludes to this in a paper on electrical endosmosis contributed to the Chemical Society of London December 15, 1845. I append the following extract from the paper, viz.:

"That two dissimilar solutions separated by a porous partition, will pass the one into the other, is a phenomenon long observed, the only necessary conditions being that the liquids have a strong tendency to combine and that the one is more capable of entering into or wetting the porous partition than the other. Liquids eminently fitted to effect this are alcohol and water and saturated solutions of some salts and pure water. But the phenomenon of endosmosis takes place also when an electric current passes through liquids separated by a porous partition. When all the above conditions are absent and even when these conditions are present, the endosmotic current will follow the electric, although in a contrary direction to that which it would take were there no electric current passing, showing that, under these circumstances, it has its origin in the passage of the electric force. This fact was first made known by Mr. Porret in the *Annals of Philosophy* in 1815."

So too Beard and Rockwell, alluding to this subject, say on page 190 of their "*Medical and Surgical Electricity*":

"The electric currents also exercise a positive and very interesting influence over endosmose. By the passage of a galvanic current the endosmotic phenomena may be both stimulated or reversed. This is shown in the following experiment of Dutrochet: A tube containing gum-water is closed at one of its ends by animal membrane and dipped in a vessel containing common water. By the ordinary operation of the laws of endosmosis the water rises in the tube on account of the entrance of some of the ordinary water through the membrane into the tube. But if the positive pole of a galvanic battery be placed in the common water and the negative pole in the gum-water, the endosmotic action is stimulated to such a marked degree that the level of the gum-water rises with much greater rapidity; if we reverse the poles the level of the gum-water in the tube sinks instead of rises. The faradic current from the secondary coil produces no such effect. The current from the inner coil—the extra current so-called—produces these effects to a less degree. It is pretty clear, therefore, that these phenomena depend on the *chemical* and not on the *mechanical* power of the current."

An extended study has been made of the phenomena of electrical endosmose. Besides the observation of Reuss and Porret, already referred to, many other able investigators have worked in this field of research.

I will cite only the following generalization of the results of many experiments by De la Rive, viz.:

"The force with which a galvanic current tends to transport a liquid through a porous partition from the positive to the negative wall is measured by a pressure which is directly proportional to the intensity of the current, to the electric resistance of the liquid, to the thickness of the porous partition and inversely proportional to the surface of that partition."

When an electric current is caused under certain conditions, to pass through compound substances a chemical decomposition, or, as it is generally called, an electrolytic decomposition of such substance occurs.

It is almost certain that when an electric current is caused to pass through certain liquid substances across a wall or septum separating them, that if not in all cases, at least whenever the strength of the current reaches a certain value, electrolytic decomposition takes place, and that there-

fore another cause is introduced to still further modify ordinary osmotic action.

As we have already seen Graham has shown that a decomposition of the septum occurs with a polarization and progressive decomposition of its substance.

That foreign liquid substances as medicaments can be successfully introduced into the body by electric endosmose does not admit of doubt, and an extremely extended and valuable field is thus opened up to the electro-physiologists. This part of the problem, belongs gentlemen to you as electro-physiologists and electro-theraputists. To me as a pysicist, there remains only to be added a few conclusions or generalizations which I think are correct concerning the cataphoric effects of an electric current. These conclusions are as follows, viz.:

1. That the presence of electric endosmose is more general than has heretofore been suspected.

2. That whenever a constant electric current is sent through the human body whether for ordinary therapeutic treatment, as well as for some definite cataphoretic treatment, a true cataphoretic action must occur. There must be determined through all the membranes or membranous substances which lie in the path of the current, a flow of certain of the fluids of the body in the direction of the current. The result of these cataphoric currents must be to engorge certain parts and deplete other parts; and, it is possible, that in many cases the therapeutic value of the current may arise mainly from such action, by the transportation of morbid matters from one part of the path to another part, or to a more uniform condition of pressure in certain parts by the transportation of fluids from gorged to depleted tissues.

This in all probability explains why in so many cases one electrode only acts as the therapeutic electrode, and the other as the indifferent electrode.

3. That since cataphoric action presumably accompanies the passage of an electric current through the body, the resistance of the entire human body, or of the parts of the human body, cannot remain uniform. Besides the variations of resistance that attend variations in the condition of the skin, and those that must result from the polarization accompanying electrolytic decomposition, there are those produced by cataphoric action in varying the distribution of the fluids of the body engorging certain portions and depleting others. Moreover, since the cataphoric action increases with the strength of the current, the resistance of the human body will necessarily vary with the strength of current employed to measure such resistance. This fact should be born in mind in measuring the electric resistance of different parts of the body.

In calling attention to the probable variation in the resistance of the human body with the strength of the current passing, I am not referring to that change in the electric resistance which arises from its electrolytic polarization; *i.e.*, to the variation in its resistance produced by the counter-electro-motive force of polarization. Such a resistance is asymmetrical, *i.e.*, possesses a different value in opposite directions. The change in the resistance due to cataphoric action should be symmetrical; *i.e.*, should possess the same value in either direction.

I do not know in point of fact whether such differences in the resistance of the human body actually follow changes in the strength of the currents passing through the human body, or variations in the duration of the time such currents are passing. I merely throw out the suggestion as what appears to me to be logical conclusions, and what I believe will be found to exist as actual facts.

In conclusion, then, there would appear to be two varieties of cataphoric action; viz.:

1. Normal cataphoresis, by means of which disturbance is effected in the distribution of the constituents of the body, by the passage of an electric current.

2. Abnormal cataphoresis, by means of which is effected an introduction of fluid substances into the body from without, by the passage of an electric current.

(To be continued.)

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SATURDAY, FEBRUARY 11, 1893.

THE TREATMENT OF MYXŒDEMA BY THYROID
EXTRACT AND THE FUNCTIONS OF THE
THYROID GLAND.

An intense interest in this subject is apparent on the part of the British medical profession, as is evident from the fact that at least a dozen articles have appeared in the leading journals in the last three months. The reports of the cases thus far recorded are very favorable, and the results are astonishing.

Naturally, in this new interest in the effects of thyroid disease, the question of the function of this gland comes into increased significance. On this point there can be no certain stand taken at present, though the promise of a solution of this difficult physiological problem seems near. In his most recent work on the functions of the thyroid gland, VICTOR HORSLEY (*British Medical Journal*, January 30, and February 6, 1892), favors three hypotheses, viz.: 1. That it is directly a blood-forming organ. 2. That it is indirectly a blood-forming organ. 3. That it modifies or destroys substances in the circulating blood which are harmful to the general economy. To these three theories GIBSON (*Ibid.*, January 14, 1893) objects. He maintains as the results of his observations and experiments, that no reduction in number of red blood cells, and but very little alteration in the number of colorless cells, follows extirpation of this organ; and that it therefore can have no blood-forming function. He believes, further, that the hypothesis of the secretory function of this gland is the more probable, the secretion being of a nature which permits its absorption into the blood, where it is essential to life. In this he agrees with SCHIFF, and with SAUQUINCO and CAXALIS, who extend SCHIFF's hypothesis by suggesting that the substance secreted by the thyroid is necessary for the nourishment of the central nervous system. In this way the cachexia strumipriva could be explained on the ground that it was the result of

retrograde metabolism from a lack of the normal nervous stimulus. From a clinical point of view, this theory of the secretory function of the thyroid seems the more adequate to explain the symptoms of myxœdema and cretinism, and the results which follow the treatment of these diseases by the administration of thyroid extracts.

The grafting of the thyroid gland of the lower animals for cachexia strumipriva, myxœdema and cretinism, has been practiced by various surgeons since 1883, with the unanimous verdict of an improvement in the symptoms in cases in which the gland survived. In the paper above mentioned GIBSON reports an interesting case of myxœdema and cretinism in a child of six years, in which, on two occasions, he grafted the thyroid gland of a sheep into the mammary region, and into the abdominal cavity of the child, with remarkable improvement in the patient, as shown most conclusively in the series of photographs.

The subcutaneous injection of the extracted juice and extraction of the thyroid was put into practical use by MURRAY (*Ibid.*, October 10, 1891), who employed this extract in the treatment of myxœdema. The cases in which MURRAY's treatment has been applied have all exhibited marked amelioration of the distressing symptoms of the disease, amounting, in some cases, to an apparent disappearance of the disease. As a rule, the improvement began after the first treatment, and progressed while the treatment was continued; the countenance became brighter, the skin softer and more pliable, the swelling of the body disappeared, with a corresponding loss in weight, the temperature increased to normal, the speech and intellectual faculties became natural, the sensations were re-established; in fact, all of the symptoms of the disorder abated or were improved. It was soon noted, however, that unless the injections were continued at occasional intervals, relapses were prone to occur; nor were the injections entirely devoid of danger, as shown in the cases of MURRAY, LUNDIE and others, in which profound depression bordering on collapse has followed the injections. Aside from this, infection, and abscess at the site of the injection, seems to follow this treatment very frequently.

These objections to the administration of the thyroid extract, by subcutaneous injection, led to experiments with the remedy given by the mouth, and in the cases published by NAPIER (*Glasgow Medical Journal*, September, 1892), MACKENZIE (*British Medical Journal*, October 29, 1892), FOX (*Ibid.*, October 29, 1892), BARBER (*Ibid.*, January 7, 1893), LUNDIE (*Ibid.*, January 14, 1893), and ANDERSON (*The Practitioner*, January, 1893), the results seem in every way equal to those obtained with the MURRAY injections. It was found that not only the thyroid extract prepared by MURRAY's or by other extraction pro-

cesses, but also the *fresh gland itself*, was available as a remedy in this disease, when given by the mouth. Cases in which the feeding with fresh thyroid glands was employed are reported by MACKENZIE, FOX, BARBER and others, and up to the present time the same improvement as followed the administration of the extracts, either hypodermically or by the mouth, has been recorded. DR. MACKENZIE advises that the treatment of myxœdema by the fresh glands be commenced with either one thyroid (from the sheep) every other day, or half a thyroid every day. The gland is to be minced and mixed with the food in any manner which suggests itself. Lightly *fried* sheep's thyroid has been employed by Fox (*loc cit.*), which was then minced and mixed with currant jelly. However, BARBER believes the heat of hot liquids to be detrimental to the best effects of the remedy, as he found in one of his cases in which the chopped gland had been taken in hot soup.

It certainly appears, that we have in this new treatment a remedy, which was suggested by a physiological and pathological study of the thyroid gland; in other words, we have a remedy founded upon scientific deductions. Whether the ultimate results of the remedy will fulfil the present remarkable promise, remains to be seen. In the meantime, let the treatment receive the thorough trial its present importance merits, and its present record justifies. In the meantime, let us not forget the advice of DR. T. McCALL ANDERSON, and employ along with this treatment, such remedies as arsenic, iron and the tonics, together with baths, and friction.

The present position of the newly inaugurated treatment, for the effects of thyroid disease, is well expressed by DR. ANDERSON: "From whatever point we regard it, there can be no doubt that a valuable new remedy has been discovered for the relief of a very serious disorder, and one which may pave the way for similar discoveries in other fields."

TUMORS OF THE BRAIN.

The report by DR. HEKTOEN of sarcoma of the pons and of glio-sarcoma of the cerebellum, which we print in this number of THE JOURNAL, will call attention to many interesting points in connection with such growths. The difficulties of diagnosis and of localization are well illustrated; the tumor in the centre of the pons appears to have been quite misleading, although the symptoms were rather those of a lesion at the base than of the cortex. The interesting observation made by GERHARD that hæmorrhage into vascular gliomas is not followed by the somewhat persistent lowering of the temperature characteristic of ordinary extravasations of blood into the brain appears to be true of sarcoma as well, although it may be that the infiltrations into the pontine tumor described were not large enough to

warrant any definite conclusions on this point. It would have been very interesting to have observed whether the faradic current applied to the dura over the motor areas through the exploratory trephine opening made shortly before death would have been followed by any abnormal manifestations or not.

The relation of trauma to the development of the the tumor in the cerebellum appears to be quite distinct and the number of recorded and reliable observations calling attention to the predisposing etiological effect of head injury to the growth of cerebral tumors is now sufficient to make this point in the clinical history of such cases one of diagnostic value. This case illustrates well the latency of cerebellar lesions with respect to localizing symptoms unless the vermes be involved, and it also shows the production of internal hydrocephalus and greatly increased intracranial pressure for the temporary relief of which trephining, and even tapping and drainage of the ventricles, have been recently proposed and performed.

The clinical study of tumors and other lesions of the brain is one of extreme interest primarily, of course, from the diagnostician's point of view, but also because an exhaustive clinical study of such cases from all possible aspects during life, completed by a careful anatomical examination after death, sometimes yields conclusions as to the function of cerebral areas and as to the localizing symptoms that could only be equalled by the most painstaking and elaborately planned experiments upon animals. American medical literature contains a few solid contributions embodying the result of this high grade of work. SPITZKA's classical contribution to the morbid anatomy and symptomatology of pons lesions, based upon the accurate clinical observation of a case of hæmorrhage into the left half of the pons and the careful anatomical study of the secondary degeneration of the nerve tract initiated by the hæmorrhage is perhaps one of the best sustained and most completely balanced studies of this kind in existence. The degeneration observed in his case proved to be one of the best sustained and most conclusive instances of tract disease recorded. SPITZKA's communication appeared in the *American Journal of Neurology and Psychiatry* for November, 1893. The observations of PROFESSOR DONALDSON, of the Chicago University, upon the brain and sense organs of the blind deaf-mute LAURA BRIDGMAN (*American Journal of Psychology*, Vol. III. No. 3 and Vol. IV. No. 4) led to important conclusions as to the extent of sensory cortical areas, especially that of the visual area, and also to the very important deduction that the early destruction of sense organs and the subsequent examination of the cortex in animals will be the means of experimental determination of the limits of the several sensory areas.

The histological study of lesions of the nervous system has received important aid through the introduction of the improved staining methods of WEIGERT and of PAL which differentiate readily between the ganglion cells, the nerve fibres, connective tissues, and areas of degeneration and sclerosis. In all investigation of diseases of the brain the use of these methods are indicated and it should not be forgotten, as we have so frequently noticed, that the tissue around the foci of disease of various kinds should be carefully examined not only because tract lesions may have been initiated but also because unsuspected degenerations of neighboring brain substance may have taken place for some distance away from the tumor or tubercular mass on account of circulatory disturbances and this may have caused symptoms during life not explainable by the gross lesion. WEIGERT'S or PAL'S method will here be of great service because they make it possible to accurately study the nerve fibres.

ON CERTAIN CONDITIONS IN REGARD TO THE INFECTIVE NATURE OF CARCINOMA.

In an address read before the Medico-Chirurgical Society of Glasgow, on October 7, 1892, (*British Medical Journal*, Jan. 14, 1893), DR. JOSEPH COATS presents his most recent views on the etiology of cancer. He proposes to analyze the characteristics of carcinomata in the same manner as tuberculosis was analyzed, and its infective nature proven, long before the discovery of the tubercle bacillus. According to this authority, COHNHEIM'S theory is satisfactory in explaining the origin of the benign (non-nulastatic) tumors, but it does not apply to carcinoma. The difference in the lesions of the infective granulomata and of cancer are pointed out, with the conclusion that the infective microbes produce homoplastic irritative tissue lesions, while carcinoma is a true tissue growth—a heteroplastic epithelial proliferation, well supplied with blood and lymph vessels and with connective tissue. The metastases of cancer are tissue growths of an elaborate and finely adjusted character which often reproduce with wonderful fidelity the characters of the primary tumor. When a graft is planted in an epithelial organ, the cells of this organ take no part in the tissue growth, they are merely pushed away by the growing tumor. Carcinomata are widely different in their characters, as is shown by the varying tendencies to burrow in the tissue, or to extend laterally instead of towards a free surface; by the varying tendencies to ulceration, to colloid metamorphosis; in fact, cancer exhibits none of the constancy in tissue lesions which characterizes tuberculosis. Cancer extends along the surface in its primary seat only by continuity of tissue; it does not scatter in its primary seat, but extends, the entire primary tumor being one contin-

uous whole. Secondary tumors do occur, it is true, but these tumors must be regarded as parts of the primary tumor—as grafts which have become transplanted. Cancer then, is a tissue growth, whereas the lesions of microbial infection thus far known, are inflammatory tissue products, the results of irritation. These considerations lead COATS to believe that if a parasitic organism has to do with the causation of carcinoma, it must be something very different in its mode of action from the bacteria with which we are acquainted.

In answer to the question, "Can a tissue growth be produced by a parasitic agency?" COATS first refers to two of his own cases. The first was a case of malignant goitre in a woman, of sixteen years standing, in which, about a year and a half before death, a secondary tumor appeared over the occipital bone, which grew to considerable size and was accompanied by other smaller tumors. On microscopical examination the secondary tumor was found to reproduce exactly the structure of the thyroid growth. If we accept the view that goitre is an infective disease, then we have an example of a true tissue growth of a complex character induced by morbid poison introduced from without; and in this light, the case just described, would be of much importance in comparing it with cancer.

The author, also refers to a case of cancer of the stomach, in which he found a number of wart-like growths of epithelium on the interior of the lower end of the œsophagus. This case, which was a marked exception to the rule that the primary tumor confines itself to the first invaded organ, suggested to COATS the idea of an infective character in the primary tumor, as though the causative organ had been regurgitated from the stomach to the œsophagus. The alleged occurrence of lowly animal organisms in *mollusum contagiosum* is noted, though the author wisely refrains from committing himself on this subject. The psorospermiosis of the lower animals is referred to, particularly the works of LEUKART and DELEPINE, and others is laid on the fact that the primary lesions in the coccidia diseases of the lower animals are associated by an overgrowth of epithelium.

The works of RUSSELL, SOUDAKEWITCH, SAWTSCHENKO, RUFFER, WALKER, and STEINHAUS on the protozoan carcinoma organism, are mentioned, and on this subject also, COATS maintains a reasonable skepticism.

The author concludes his address by stating that he listens with more favor than formerly to the suggestion that cancer is due to an infective parasite introduced from without. The vegetable parasites are not capable of producing tissue growth as observed in carcinoma, but it does seem possible that minute animal organisms, by entering into the substance of

the cells and there undergoing their stages of evolution, could produce phenomena of a kind similar to those of cancer. Even after the discovery of a specific parasite, there would be many problems in the characteristics of cancer which would demand solution, so that, at present, we must assume a waiting attitude.

NO FEAR OF CHOLERA.

In an interview with DIRECTOR-GENERAL DAVIS, of the Columbian Exposition, in the *Chicago Tribune*, of Feb. 7, this functionary is reported as saying: "The anxiety existing about a possible outbreak of cholera this year arises largely from the agitation of the subject by alarmists, principally of the medical fraternity, with whom the discussion of the probability of an epidemic of some nature is a professional fad."

We would most respectfully ask DIRECTOR-GENERAL DAVIS who he would expect to be alarmists in case of a threatened invasion of contagious disease, if not those whose profession makes it necessary for them to be the active combatants in the fray that is so portentous at this time? Does the Honorable Director-General of the Columbian Exposition look to the Board of Trade, the writers for the daily press, the fire insurance companies or the marines for a code of sanitary laws and suggestions pertaining to quarantine regulations? All of these bodies are both respectable and reputable, and have been found capable of formulating and solving many intricate business relations, and having done this, DIRECTOR-GENERAL DAVIS would have the people to know that they are also equal to the task of frightening away the cholera, which he would, from the abundance of his wisdom have the world to know is only casting the shade of a shadow in the direction of the Columbian Exposition.

Of a truth, Director General is the King Canute of the Western Continent. The fiat has gone forth. With the great Columbian sceptre in his hand the Director General has entered the Decree. Thus far shalt thou come, dire and dread disease, but no farther. The fiat of the Director General, like unto the laws of the Medes and Persians, is never altered or made subject to revision by a human court.

Why have the fathers and sons of Æsculapians for more than twenty centuries been delving in the unknown for new truths, to be recorded for a guidance in the prevention and treatment of disease, which after all, is only a business professional fad? When all that is necessary in order to keep the infectious germs from migrating, is a waft of the wand of an Imperial Director-General of a Columbian Exposition, vulgarly termed a World's Fair.

Before this modern Director-General of the Columbians we your unworthy subjects bow in humble sub-

mission. We now know the cholera and its coming is a veritable fad expressly gotten up for business purposes. We know it won't, it dare not come in the face of the Decree,—but all the same when it does come and the Director-General himself begins to feel the peculiar wriggles and contortions of the exceedingly active comma bacillus, when it takes on Delsarte movements, and lightly skips from side to side as it meanders along the serous coat of the Director-General's bowels—perish base figment of an imaginative imagination, there is neither a possibility or probability of such a movement, for the Decree is entered up and is now in full force and unimpeachable by any professional or scientific theory that may be conceived by medical men.

Let us henceforth cease to be agitators and theorists, or make further efforts to create corners in comma, spirilla-shaped or other germs. These things are all on the Director-General's side. They are every one of them in favor of work every day in the week, both nights and Sundays. Thereby they increase in numbers.

The medical profession has been regarded as an exemplar in morals, for it is the only profession or calling, the members of which have for their own guidance a written Code of Ethics. This high estate of morality in which they live, leads them to deprecate all attempts to abrogate the Sabbath as a day of rest. These infectious, hard to control bacilli are constant Sunday workers, hence it is they are on the side of the Director-General of the Columbian Exposition, and squirm against all medical opposition.

The Director-General is Monarch Shoo-Shoo of the germs.

THE KEELEY CURE INSTITUTES.

Going, going, going and gone !

Advertisements similar to the following may now be found in the current daily newspapers :

At 42 South Curtis St., this Tuesday morning, 10 o'clock, auction sale contents Keeley Institute. Iron bedsteads, hair mattresses, good bedding, sheets, blankets, slips, etc., etc. Folding beds, office furniture, range, plated ware, crockery, etc., etc. Sale peremptory.

ELISON, FLERSHEIM & Co.,
Auctioneers.

The sustaining efforts of PARSON TALMAGE, the gullible press and philanthropic spasms of KEELEY himself were not sufficient to sustain the fad for the half of a half decade.

STATE MEDICAL SOCIETIES.

The following gives secretary's name, with time and place of meeting, 1893.

Alabama—T. A. Means, Montgomery: Selma, April 11.

Arkansas—L. P. Gibson, Little Rock: Batesville, May 31.

California—W. W. Kerr, San Francisco: San Francisco, April 18.

Colorado—A. S. Lobingier, Denver; Denver, June 20.
 Connecticut—N. E. Wordin, Bridgeport; Hartford, May 24.
 Delaware—W. C. Pierce, Wilmington; Cape Henlopen City, June 13.
 Florida—J. D. Fernandez, Jacksonville; Jacksonville, April 4.
 Georgia—D. H. Howell, Atlanta; Americus, April 19.
 Illinois—D. W. Graham, Chicago; Chicago, May 16.
 Indiana—E. S. Elder, Indianapolis; Indianapolis, May 10.
 Iowa—C. S. Chase, Waterloo; Burlington, May 17.
 Kansas—W. S. Lindsay, Topeka; Topeka, May.
 Kentucky—Steele Bailey, Stanford; Frankford, May.
 Louisiana—P. B. McCutcheon, New Orleans; New Orleans, May 9.
 Maine—C. D. Smith, Portland; Portland, June 14.
 Maryland—G. L. Taneyhill, Baltimore; Baltimore, April 25.
 Massachusetts—F. W. Goss, Boston, Boston, June 13.
 Michigan—C. W. Hitchcock, Detroit; Muskegon, May.
 Minnesota—C. B. Witherle, St. Paul; Minneapolis, June 21.
 Mississippi—H. H. Haralson, Forest; Jackson, April 19.
 Missouri—L. A. Berger, Kansas City; Sedalia, May 16.
 Montana—T. H. Ellis, Butte; Great Falls, April 19.
 Nebraska—Geo. Wilkinson, Omaha; Nebraska City.
 New Hampshire—G. P. Conn, Concord; Concord, June 26.
 New Jersey—Wm. Pierson, Orange; Spring Lake, June 27.
 New York—E. D. Ferguson, Troy; New York, Oct. 10.
 North Carolina—R. D. Jewett, Wilmington; Raleigh, May 9.
 N. Dakota—D. S. Moore, Jamestown; Jamestown, May 25.
 Ohio—T. V. Fitzpatrick, Cincinnati; Put in Bay, June.
 Oregon—C. H. Wheeler, Portland; The Dalles, June 13.
 Pennsylvania—Wm. B. Atkinson, Philadelphia; Williamsport, May 16.
 Rhode Island—W. R. White, Providence; Providence, June 1.
 South Carolina—W. Peyre Porcher, Charleston; Sumpter, April 19.
 S. Dakota—R. C. Warne, Mitchell; Huron, May or June.
 Tennessee—D. E. Nelson, Chattanooga; Nashville, April 11.
 Texas—H. A. West, Galveston; Galveston, May 2.
 Vermont—D. C. Hawley, Burlington; Rutland, Oct. 12.
 Virginia—L. B. Edwards, Richmond; Charlottesville, October.
 Washington—G. D. Shaver, Tacoma; Tacoma, May 10.
 W. Virginia—D. Mayer, Charleston; Parkersburg.
 Wisconsin—C. S. Sheldon, Madison; Milwaukee, May 3.

BOOK REVIEWS.

KIRK'S HAND-BOOK OF PHYSIOLOGY. By W. MORRANT BAKER, F.R.C.S., late Surgeon to and Lecturer on Physiology at St. Bartholomew's Hospital, etc., and VINCENT DORMER HARRIS, M.D., F.R.C.P., Demonstrator of Physiology in the University of Durham, etc. 13th edition, with upwards of 500 hundred illustration, including some colored plates. Philadelphia. P. Blakiston, Son & Co. 1892.

The fact that this work has passed to the 13th edition is good evidence of the high esteem in which it is held. The reviewer remembers the pleasure and satisfaction with which he read one of the earlier editions during his medical course, and after this lapse of time—never mind how long—it provokes no feelings of disappointment to traverse the same journey again. The account of Physiology is brought up, as far as possible, to the present time. It does not profess to be exhaustive, for it is intended especially to furnish the medical student with a foundation upon which a knowledge of physiology may be safely based.

The book has been thoroughly revised and the scope of the work somewhat enlarged, yet the book has been kept within a very convenient limit as a hand-book, although it contains 884 pages. One secret of this is the very thin paper on which it is printed.

The chapter on food and digestion is full of such instruction as is needed by physicians and nurses, and in fact everyone who eats. The table showing the relative nutritious properties and digestibility of foods, and the rules laid down for their preparation, are of the utmost practical importance.

Thirty pages are devoted to a description of the kidneys and their functions.

In the chapter on nutrition it appears that the editors do not credit the American fasters with subsisting for 40 days on air and water alone. Several reputable physicians and disinterested laymen known to the writer watched one of the fasters and certified to the genuineness of the fast.

Although this work as a whole is one of a high standard of excellence, it is susceptible of improvements. On page 560 correct directions are given for laryngoscopy, but on the opposite page the illustration of the examination shows the light concentrator away below the proper level, and out of range with the forehead mirror, a mistake any laryngologist would notice at a glance. On page 624 another error occurs. In enumerating the effect of paralysis of the facial nerve they mention "the loss of power in the muscles of the internal ear." Of course the middle ear is meant.

It will be necessary to have some of the cuts renewed or improved for the 14th edition. They have served long enough to be retired on a pension. For example, on page 702 as many as nine of the letters of reference are missing and unaccounted for, except in the text. A most diligent search has failed to find them in the cut. In some of the other illustrations the letter or figures are so badly worn as to render their reading impossible.

The publishers have made a beautiful book, but the night reader will never forgive them for using mirror-paper.

The language is generally perspicuous, but in some instances it becomes as ambiguous as that of the theosophists. Mention is made of this peculiarity because of the severely critical attitude of some of our English friends towards writers on this side of the pond. They may retort that Americans cannot understand Bacon. They will learn better next summer.

FISSURE OF THE ANUS AND FISTULA IN ANO. By LEWIS H. ADLER, JR., M.D., Instructor in Diseases of the Rectum, Philadelphia Polyclinic and College for Graduates in Medicine. Detroit: George S. Davis. 1892.

In this little brochure the author deals systematically

with his subject-matter. It forms an interesting addition to the Physicians' Leisure Library Series, and will amply repay an attentive perusal. Practitioners will find here an aid in diagnosis and treatment of these distressing ailments.

ACNE AND ALOPECIA. By L. DUNCAN BULKLEY, A.M., M.D., Professor of Diseases of the Skin, New York Post-Graduate School. Detroit: George S. Davis, 1892.

We have here another addition to the Leisure Library Series, which deals with subjects interesting to the general practitioner as well as to the specialist. In no branch of medicine will careful attention to details give more satisfactory results than in dermatology. Dr. Bulkley has here given us an interesting and instructive treatise on subjects that come under the everyday observation of most physicians.

PRINCIPLES AND PRACTICE OF BANDAGING. By GWILYUR G. DAVIS, M.D., Demonstrator of Surgery, University of Pennsylvania. Detroit: Geo. S. Davis, 1891.

The author here takes for his subject-matter a very important adjunct of surgery. A close attention to and faithful practice of the principles outlined will amply repay the young surgeon for the time so employed. The book will prove a valuable aid to students and young practitioners.

MISCELLANY.

THE INTERNATIONAL CONGRESS OF CHARITIES, CORRECTION AND PHILANTHROPY, JUNE 12-18, 1893.—*Section Four on the Hospital Care of the Sick, the Training of Nurses, Dispensary Work, and First Aid to the Injured.*—One of the series of International Congresses to be held in Chicago in 1793, is to be devoted to the subjects of Charities, Correction and Philanthropy, and Fourth Section of this is to consider all matters relating to the Hospital Care of the Sick, the Training of Nurses, Dispensary Work, and First Aid to the Injured. The Committee of Organization of the Congress has appointed Dr. John S. Billings, Surgeon U. S. Army, as Chairman of this Section, and Dr. Henry M. Hurd, Superintendent of the Johns Hopkins Hospital in Baltimore, as its Secretary, and has authorized and requested them to complete its organization, to extend invitations and to prepare a program for its work. Miss Isabel A. Hampton, Superintendent of the Training School for Nurses of the Johns Hopkins Hospital has been appointed Chairman of that part of the work of the Section which relates to the training of nurses.

This Section will hold five sectional meetings of about two hours each, commencing June 12, 1893, and will also have charge of one of the general sessions of the Congress, viz: that held on the morning of June 14.

It is desired that this shall be a truly international gathering for conference on the subjects allotted to this Section, and all who are interested in Hospitals, in Training of Nurses, in Dispensaries, or in First Aid to the Injured, are cordially invited to be present, to contribute papers and to take part in the discussions.

The papers and proceedings will probably be printed as a separate volume, and it is hoped that this will represent the best methods, and the best work in each of these departments in all parts of the world.

The following are suggested as subjects for special consideration in papers to be prepared: 1. Hospital Organization—Governing Bodies—Relations of the Medical Staff and of Nurses' Training Schools. 2. Hospital Finances—Means of Support—Mode of Keeping Accounts—Cost. 3. Plan and construction of recently built General Hospitals, embodying the latest improvements. 4. Relations of Hospitals to increase of Knowledge; to Medical Education, and to the Medical Profession. Hospital Records, Statistics and Reports. 5. Pay Patients in Hospitals. 6. Isolating Wards and Hospitals for contagious Diseases. 7. Hospital Diets, Dietaries, Kitchens, etc. 8. Hospital Amphitheatres and Operating Rooms. 9. Hospital Laundries and Disinfecting Establishments. 10. Army and Navy Hospitals—Emergency Hospitals in Time of Epidemics—Temporary and Movable Hospitals. 11. Small and Special Hospitals, Cottage Hospitals, School Hospitals, Private Hospitals, Sanitor-

iums, etc. Convalescent Hospitals, and what to do with Incurables. 12. History and present condition of Hospitals in the large cities. 13. Training Schools for Nurses. 14. Dispensaries—Relations to the Public and to the Medical Profession. Dispensary Records. 15. First Aid to the Injured. Associations for best means of popular instruction in and its place in General Education.

Persons desiring to present papers, or to share in the discussions of this Section, are requested to communicate with the Secretary at once. The period of time allotted for the preparation of the program is necessarily brief, and it is essential that all who are willing to assist in this work should act promptly. Address all communications to Dr. Henry M. Hurd, The Johns Hopkins Hospital, Baltimore, Md.

JOHN S. BILLINGS, M.D.,
HENRY M. HURD, M.D., Secretary. Chairman

MEDICAL EXAMINATIONS—Candidates applying for a license (after the July 1893, meeting of the State Board of Medical Examiners) to practice Medicine in New Jersey, will be examined in the following subjects arranged in sections, as follows, viz: Sec. 1, Materia Medica and Therapeutics; Sec. 2, Obstetrics and Gynecology; Sec. 3, Practice of Medicine (including diseases of the Skin, Nose and Throat); Sec. 4, Surgery (including Surgical Anatomy, and diseases of the Eye, Ear, and genito-urinary organs); Sec. 5, Anatomy; Sec. 6, Physiology; Sec. 7, Chemistry; Sec. 8, Histology, Pathology and Bacteriology; Sec. 9, Hygiene and Medical Jurisprudence. The following percentages will be required, also, after that date, before a license will be issued, viz: candidates examined in the first class, *i. e.* graduates of five years or more, shall obtain a total average of eighty (80) per cent.; candidates examined in the second class, *i. e.* graduates of less than five years, shall obtain a total average of seventy-five (75) per cent., providing that in no one section shall the percentage be less than thirty-three and one-third (33 $\frac{1}{3}$) per cent., in which case, however, should the total average percentage in all the other sections, be above seventy-five (75) per cent., the candidates may be granted a second examination, immediately, upon that section: candidates examined in the third class, *i. e.* non-graduates, who have taken three full courses of lectures in a reputable Medical school, shall obtain a total average of eighty (80) per cent., and candidates taking their preliminary or final examination, shall obtain a total average of eighty (80) per cent., at each of said examinations.

THOS. PERRY WATSON, M.D., Secy.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from January 28, 1893, to February 3, 1893.

Capt. Louis A. La Garde, Asst. Surgeon U. S. A., is relieved from duty at Ft. McHenry, Md., and will proceed to Chicago, Ill., and assume his duties in connection with the World's Columbian Exposition.

Capt. C. N. Berkeley Macaulay, Asst. Surgeon, now awaiting orders at Baltimore, Md., will report in person to the Superintendent of the U. S. Military Academy, West Point, N. Y., for duty at that post.

Capt. Chas. B. Ewing, Asst. Surgeon U. S. A., will, in addition to his present duties as attending surgeon, and examiner of recruits in Baltimore, Md., report in person to the commanding officer, Ft. McHenry, Md., for duty as post surgeon, taking station there.

Capt. Guy L. Edie, Asst. Surgeon U. S. A., will proceed from New York City to Ft. Wadsworth, New York Harbor, and report to the post commander for temporary duty.

Capt. Louis W. Crampton, Asst. Surgeon U. S. A., now on leave of absence at Los Angeles, Cal., will report in person to the commanding General, Dept. of Arizona, for such temporary duty at Los Angeles, Cal., as may be required.

OFFICIAL LIST OF CHANGES in the Medical Corps of the U. S. Navy, for the Week Ending February 4, 1893.

Asst. Surgeon L. H. Stone, ordered to Naval Hospital, Brooklyn, N. Y.

P. A. Surgeon G. H. Barber, from Naval Hospital, Brooklyn, N. Y., and to the U. S. S. "Miantonomoh."

Asst. Surgeon N. J. Blackwood, from U. S. S. "Miantonomoh," and to the U. S. Navy Yard, Brooklyn, N. Y.

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CHICAGO, FEBRUARY 18, 1893.

No. 7.

ORIGINAL ARTICLES.

THE POSSIBILITY OF THE EARLY DIAGNOSIS OF LOCOMOTOR ATAXIA BY THE EYE-SYMPTOMS.

Read before the Philadelphia Neurological Society, Jan. 23, 1893.

BY HOWARD F. HANSELL, M.D.,

LECTURER ON OPHTHALMOLOGY, JEFFERSON COLLEGE.

A review of the voluminous literature on the subject of the eye symptoms in tabes will impress one with the overwhelming importance of a careful and thorough inspection of the extrinsic muscles, the pupils and accommodation, and the optic nerve in the diagnosis of that disease. And this is particularly true in its earliest stages. A well marked case in its second or third stage presents no difficulties. The symptoms are of such a pronounced and individual character and so frequently found in association that "he who runs may read." But in that variable and usually extended period before the spinal sclerosis has developed its distinctive features of altered locomotion, incoördination, perverted and increased sensibility and paralysis, when a diagnosis is of greater value to the patient, an investigation of the ocular apparatus will not infrequently furnish reliable data from which positive deductions concerning the distant future can be drawn.

I will take up, in this paper, eye symptoms of the first or pre-ataxic stage only. They include disturbances of,

First.—The Extrinsic Muscles.—Graefe,¹ in speaking of sclerosis of the posterior columns says, "paralysis of the eye-muscles may appear in a very early period of the disease, for we are bound to accept the conclusion that either independently of the disease process in the cord, or in connection with it, patches of degeneration analogous to those in the cord, form in the nerve nucleus or in the encephalic course of the fibres of the nerves supplying the muscles, and the paralysis can no more be attributed to the diseased patches in the cord than can the changes in the optic nerves which are found under similar conditions."

Schmeichler says² "the disturbance of the eye muscles in tabes consists in paresis of one or several. It begins, if it develops at all, almost always with the very first symptoms of the tabes, but at times it precedes the latter by many years."

E. Berger³ says, "in my cases (109) the far greater number of the ocular paralyzes was in the stradium preactacticum."

Gowers⁴ says "paralysis of the external ocular muscles is also common in tabes and occurs in several forms. 1. Transient weakness lasting a few days

or weeks, and then passing away. 2. Permanent paralysis, complete or incomplete, of a single nerve or part of a nerve. Either form may occur at any stage, but the first is more common in the early and the second in the later stages of the disease."

Swansy says⁵ "in the premonitory stages of tabes dorsalis ephemerical partial paralyzes affecting now one, and again another of the orbital muscles, may sometimes be observed."

Noves⁶ says, "in special cases the paralysis is likely to be incomplete and not to be permanent. No other sign of spinal cord disease may occur for a long time and this symptom, while unsupported by others, will remain of doubtful significance."

R.P. Howard⁷ details the history of a case from which I extract the following paragraph: "Patient, an educated man fifty-four years of age, was of studious and very temperate habits, and free from evidences of syphilis, the possibility of which disease he positively denied. He married at thirty-three and was the father of sixteen children, the youngest eight months old. About the beginning of August, 1883, he suffered from severe headache, which he regarded as migraine, having been afflicted with that neurosis in his youth; at the same time he became irascible. Toward the end of the month strabismus, diplopia, and slight ptosis on the left side supervened, but these gradually disappeared in about six weeks. Some five months later deviation of the right eye, with diplopia, set in, and in about two months was followed by ptosis, which like the other symptoms, developed gradually, but unlike them, has proved permanent." Among the reasons for making the diagnosis of tabes, he gives "the early disturbance of the external and internal ocular muscles."

Roberts⁸ says, "certain so-called premonitory symptoms are usually observed, which may last for months or years, but these are really the early symptoms of the disease." Among them he mentions slight strabismus or ptosis.

In an article by Dr. J.A. Jeffries⁹ are found the following statements: "In tabes, as has long been known, there has been frequently a history of transitory diplopia during the prodromal period." "The origin of these fugacious paralysis is not known, but their significance, when combined with previous syphilitic infection is gravely suggestive of tabes to follow." "An eye paralysis, however simple it may seem, is always a just cause for suspicion of trouble to come, and demands a prompt and thorough examination of the patient."

Alexander,¹⁰ in speaking of paralysis of single branches of the 3d nerve, says, "since the ptosis frequently disappears we must attribute to a transi-

¹ Graefe and Saemisch, Bd. vi., p. 69.

² Arch. of Ophthal., Vol. xli, Nos. 3 and 4, p. 359.

³ Arch. of Ophthal., Vol. xix, No. 1, p. 485.

⁴ Diseases of the Nervous System, Am. Ed., p. 295.

⁵ Diseases of the Eye, 3d. Ed., p. 432.

⁶ Diseases of the Eye, p. 151.

⁷ Am. Jour. Med. Sci., Nov., 1889.

⁸ Practice of Medicine, 5th. Ed., p. 939.

⁹ Boston Med. and Surg. Jour., Oct. 27, 1892.

¹⁰ Syphilis and Auge, p. 137.

tory disturbance of circulation, which sometimes precedes by years the development of tabes."

Cornwell¹¹ states that "in tabes dorsalis the paralysis (of the eye muscles) often precedes the other symptoms some months, and at times, years." Hughlings Jackson found in six out of nineteen cases, diplopia to be the first symptom. . . . After it has fully developed and remained stationary for a time, it is apt to disappear.

Moore¹² says, "we must not omit the paralysis of the external muscles of the eye, that are so commonly seen in tabes, usually either the abducens or the motor oculi, and rarely the fourth nerve, which gives rise to various symptoms of dizziness, diplopia and strabismus. Graefe has pointed out that tabetic patients show little disposition to fuse the images in binocular vision, and this is taken as a sign of the central origin of the affection. These muscular paralyses are frequent in the early stages¹³ of the diseases; they are transient often in character, and this fact has not been very readily explained. Ptosis is also present when no other branch of the third nerve is involved."

Dr. Max Kargër, of Berlin, in an analysis of 117 cases of locomotor ataxia, "finds at the commencement of the disease . . . slight and transitory paralysis of eye muscles."¹⁴

A sufficient number of authorities has been quoted to warrant the statement that ocular paralyses are among the earliest symptoms in the preatactic stage of tabes. The muscles affected are, in the order of their frequency, the external rectus, the levator palpebrarium, and finally other branches of the 3d nerve. Two features characterize early spinal paralysis and help to differentiate it from that and from other affections of the nervous system. 1. Its incompleteness: 2. Its transitoriness.

My first case was sent by Dr. Frank Woodbury, who kindly furnished the following history:

Case 1.—Mr. Blank, 61 years of age, of German parentage. Father died at about 60 years of age with catarrhal jaundice; mother died when he was a child. A sister older than himself died of phthisis; one brother died with pneumonia, the other with hepatic abscess after being afflicted with locomotor ataxia for several years. The patient is of highly nervous temperament and is excessive in his attention to himself and his health. As the result of a naturally good constitution and absence of all excesses, he has enjoyed remarkable immunity from sickness. He had croup as a child and had the other ordinary diseases of childhood; but his adult life has been exceptionally healthy. He has decided fondness for the pleasures of the table and as a result, has symptoms of chronic indigestion, constantly coated tongue, etc., which, however, causes him little annoyance. He has probably had some gastric catarrh for years and also post nasal catarrh, the latter having been cured by treatment. At one time he had middle ear inflammation, which permanently impaired auditory power in the right ear. Even previous to this time he had had tinnitus in this ear, which still persists, although the ears present no evidences of lesion. He has no vertigo; but on account of double vision is referred to Dr. Hansell for examination of the eyes.

Four months ago he noticed double vision. Examination revealed paresis ext. rect. of L., candle light 20' distance, exactly in front of face appeared double; images fused by prism varying, at different times, from 15° to 30°, base in; pupils contracted, L. more than R. and slightly irregular in outline. No synechiæ. Both contract on accommodation but not to light. Slight cortical capacity L. lens. Fundus of each normal excepting one vein in the left retina slightly tortuous. Nerves healthy in color and outlines distinct. Knee jerks exaggerated. No dizziness or ver-

tigo. Rombergs symptom absent. No incoördination, No disturbance in sensibility. No pains.

Second—The Pupil.—A consideration of the pupillary symptoms in the earliest stages of tabes involves a study of their size, their inequality, and their reaction to light and to convergence. Normal pupillary movements depend, in the absence of ocular disease, upon the sensitiveness of those fibres in the retina and optic nerve which convey impressions of degree of light; upon a healthy condition of the nuclei of the pupils in the floor of the fourth ventricle and intercommunicating fibres; upon the soundness of the pupillary branch of the 3d nerve, from its nucleus to the iris, and upon the cilio-spinal centre in the region of 1st and 2d dorsal vertebræ and its communications with the cervical cavernous plexus, lenticular ganglion and the long ciliary nerves. Disease, therefore, of any one of these parts will cause abnormal contraction or dilatation, and will destroy reflex, consensual or associated action.

That such interference is found in the preataxic stage of tabes is shown by many authorities, and would probably be mentioned more frequently but that myosis may exist for years without attracting a patient's attention or bringing him to the notice of the neurologist, and no standard of size, under the same condition of light, seems to be accepted. It is, however, safe to assume that a pupil smaller than 2.5 mm. in diameter, in moderate intensity of light, is pathological.

Schmeichler (*loc. cit.*) relates the case of an "intelligent man who related to me that four year ago his attention had been directed to his narrow pupils; that he had followed their progressive narrowing since then before the mirror, and feared very much that he would become blind by their closure."

Berger found that six cases out of a total of 26 with myosis in stad. preatax. In the case of Mr. Blank, myosis is a conspicuous symptom. According to his own statement he has frequently had the size of his pupils brought to his attention during several years. A peculiarity noticed by Schmeichler of the tabetic pupil is the unusual length of time, after the instillation of a drop of atropine solution, before the pupil regains its previous size—from three to four times as long as in average normal eyes. I used one drop of an 8 grain solution of homatropine to dilate Mr. Blank's pupil to facilitate the examination of the fundus, and it was fully seven days before the pupil had returned to its previous size, five days more than is usually required. Again, the dilatation produced by a mydriatic is less in degree, rarely exceeding 4-5 mm. in width—a condition noticed under the homatropine mydriasis in Mr. Blank. A few writers speak of the inequality in the size of the two pupils in the early stages of tabes. Thus Berger says, "There is no marked difference in the relative frequency of inequality of the pupils in the different stages of tabes; it is but slightly more frequent in the initial stages."

Charcot¹⁵ has also called attention to this symptom.

Jessup¹⁶ says "unequal pupils are often found in cases of apoplexy, acute meningitis, chronic and acute alcoholism, general paralysis of the insane, locomotor ataxia."

Case 2.—Mrs. V., Dec., 1889. R. pupil contracted. L. normal,

¹¹ Am. Jour. Med. Sci., April, 1884

¹² Journal of Nervous and Mental Diseases, 1888, p. 237.

¹³ Italics mine.—H. F. H.

¹⁴ Jour. Mental and Nerv. Dis., Vol. xv, 1888.

¹⁵ Rec. of Ophthal., Nov. 1887.

¹⁶ Oph. Review, July, 1888.

both respond to light and convergence. Dec., 1892. Had an attack of dizziness one month ago. Says she has rheumatic pain in feet. R. pupil contracted and does not respond to light, but contracts with convergence. L. pupil normal in size and reaction. Knee jerk on L. side almost absent. A positive diagnosis cannot be made, but the anisocoria, unilateral Argylle-Robertson pupil, limited color field with no diminution in the field for white, partial loss of knee jerk and fleeting pains in the feet would seem to point to a commencing sclerosis in the posterior columns of the cord. The Argylle-Robertson pupil is a well known symptom of tabes in all three stages. It is most common in the second, but exceeds in frequency even in the first stage, the normal. Good reaction of the pupil was retained until the paralytic stages in 109 cases studied by Berger, in only four. When that stage was reached all pupils were altered in their reactions.

The Argylle-Robertson pupil has been observed in progressive paralysis, in cerebral syphilis, and possibly in disseminated sclerosis but so rarely that its presence alone would almost warrant the assumption of a commencing post-sclerosis.

Third—The optic nerve.—The earliest sign of degenerative changes in the optic nerve is a diminution of the size of the color fields, then a loss of sensibility to green, with a relative decrease in the fields of other colors, a concentric limitation for white, and, finally, total loss of vision. In many cases it is quite impossible to recognize ophthalmoscopic changes until the field for white becomes limited. Hence the perimeter is more important than the ophthalmoscope in the early diagnosis of tabes. Perimetric measurements, to be accurate, must be conducted with great care, and often repeated with the same set of tests and under the same conditions of illumination. It must be remembered, too, that the ability to distinguish and perceive colors varies among different persons, and according to the method of examination. Ophthalmoscopically, the earliest stages of tabes may be suspected by the clear cut nerve with a pronounced excavation and distinctly seen lamina cribrosa and irregularly surrounded by pigment, loss of color, particularly on the nasal side, dilatation and tortuosity of one or two veins, perhaps limited to one and usually the lower segment of the retina (Schmeichler) otherwise vessels normal in calibre and unaccompanied by the white lines which indicate a thickening of their walls. Authorities differ as to whether the temporal or nasal half of the disc shows first the discoloration and hence we must conclude that it is sometimes one, sometimes the other, and frequently the color of the entire disc is normal. By far the greater portion of the cases shows the L. optic nerve to be the first implicated. That atrophy of the optic nerve may precede general symptoms of tabes is abundantly proven. In seven of Berger's cases it was the first symptom, spinal symptoms appearing later. He quotes Charcot, Förster, Graves and Michel in relation to the largest interval of time between the commencing "deterioration" of vision and the earliest and most common symptom of spinal irritation—lancinating pains—and states it to be from two to twenty years.

In case 1, left eye, examination on October 5 and 6, showed decided limitation for green. It was not recognized outside of a circle 5° from point of fixation. Two months later, after salivation and iodide of potassium in large doses the field for green became almost normal in extent. Again, a large retinal vein running down and in, was dilated and tortuous. After treatment it became normal in calibre and course.

Case 3.—Mrs. G. In September of 1883, complained that for 18 months she has not been able to see to go about alone at night, excepting in the moonlight, nor could she see to sew on any colored material. V. R., 20-100, L. 20-20. Both discs white. Fields for white limited on nasal side. Color fields not taken. Pupils very small but responsive to light and convergence. In November of the same year commencing tabes diagnosed by Dr. Chas. K. Mills, to whom I took her in consultation. "She now complains of sharp pains in the legs. Rhombert's symptom." (Extract from my note book). Five years later the disease ended fatally. While an investigation of the signs of spinal disease, had it been made during the 18 months prior to the first visit to me, might have revealed commencing degeneration of the cord, the first and only symptom complained of during that period, was deterioration of vision due to atrophy of the optic nerves, well advanced in the R. A diagnosis of tabes might safely have been made at this period (1883) from the eye symptoms. Myotic pupils, scarcely responsive, white discs and limitation of the fields for white and probably for colors (since she hesitated in matching colors—the only test to which she was subjected).

Pershing, in an instructive article "Pre-ataxic Tabes Dorsalis with Optic Nerve Atrophy" relates two cases, which I quote in part.

Case 1.—C. L., printer, 38 years old. His mother died of "neuralgia of the stomach." One of the mother's sisters was insane, and the patient's only sister is very nervous and excitable. . . . syphilitic history. . . . V. began to fail in the L. in April, 1889, and grew steadily worse until January, 1890, when V. in R. also became much impaired; L. seeming to improve. Transient ptosis on the left side was noticed several times. The knee jerks were found absent in November, 1889. Present condition November, 1890. Can barely see a hand close to face. Cannot count fingers. Pupils equal, moderately contracted; light reflex scarcely perceptible; accommodation reflex could not be tested. White atrophy of both optic discs. Knee jerks entirely absent even with Jendrassik's reinforcement. Plantar and cremasteric reflexes present; abdominal excessive. Station with eyes closed normal; stands on either foot. Walks backward perfectly well. No ataxia in arms or legs. . . .

Case 2.—E. P., 53, married. Mother died at 76, of softening of the brain. Father, brothers and sisters said to be very nervous. No syphilitic history. . . . Present condition Jan. 15, 1891. V. R. 5-6, L. 5-10. The fields are much contracted, both for white and colors, especially on the nasal side. Both optic papillæ are sharply defined and of a grayish tint. The R. pupil reacts well to light; the L. is contracted, irregular in contour, with light reaction barely perceptible. Both react well on convergence. The knee jerks are present, and are increased by reinforcement. . . . With eyes closed he can stand on either foot and walks well. There is no ataxia of arms or legs. (All other symptoms absent).

In determining the diagnosis, we must remember that the ocular symptoms illustrated by the cases recorded in the literature as well as my own three cases may be the result of other causes than posterior spinal sclerosis. The causes of ocular paralysis are traumatism, orbital disease, pressure upon the nerve in its course by gumma or other tumors, meningitis, dropsy of the third ventricle, nuclear disease, sclerosis of the brain, spinal disease, etc. Myosis may be medicinal (eserine, opium) irritative, in apoplexy, early stage of meningitis, inflammation of the eye, or paralytic, in affections of the lower cervical and upper dorsal spinal nerves, due to traumatism or disease. The Argylle-Robertson pupil is sometimes found in progressive paralysis but in the large proportion of cases it is a symptom of the first and second stages of tabes. Simple primary atrophy of the optic nerves (without signs of neuritis) is more frequently found in tabes than in all other organic nervous affections. To quote from Pershing's article, "Indeed primary bilateral atrophy alone makes the existence of tabes probable. Nettleship found that of 76 cases, 58 certainly and 10 more

probably were due to the same causes that give rise to degenerative changes in the spinal cord and brain. Peltesohn found that of 98 cases of spinal or cerebro-spinal atrophy occurring in Hirschberg's clinic, 78 were cases of *tabes dorsalis*. Among cerebral causes may be mentioned, hydrocephalus, tubercular masses pressing upon the chiasm, softening and sclerosis of brain tissue. V. Graefe attributes 30 per cent. of all optic nerve atrophy to spinal causes—degeneration of the posterior and lateral columns from sclerosis or chronic myetitis, idiopathic or traumatic.

Various and contradicting opinions are offered by investigators as explanatory of the ocular paralyses associated with *tabes*. We may, however, accept as probably true, that the paralysis of the extrinsic muscles is, when transient, the result of vaso-motor disturbance and when permanent, of peripheral neuritis, and rarely nuclear, excepting in the last stages, that the myosis and Argyll-Robertson pupil are symptoms of disease of the cilio-spinal centre and that the optic nerve atrophy is a true primary degeneration of the nerve in no way different from that of the cord but not dependent upon it.

My conclusions may be thus summarized:¹⁵

1. That a transient external paralysis, for example, a ptosis or esotropia, in the absence of known cause might be an indication of incipient *tabes*.

2. The spinal myosis, the reflex to light wanting but to convergence preserved, monocular or binocular would warrant a strong suspicion of incipient *tabes*.

3. "Idiopathic" optic nerve atrophy, non-inflammatory, of unequal degree, often precedes by months or years, the appearance of the spinal symptoms of *tabes*.

4. That pareses of one or two extrinsic muscles, spinal myosis and Argyll-Robertson pupil, and incipient optic nerve atrophy, coexistent in a person of from 30 to 60 years of age, with inherited neurotic tendencies are forerunners in the majority of cases of posterior spinal sclerosis.

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HIP DISEASE.

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The term hip disease is used for any chronic inflammation in the synovial membrane of the hip joint, in the acetabulum, in the head, neck, or great trochanter of the femur, or in the soft parts immediately surrounding these, which, if allowed to progress without treatment, would ultimately present the symptoms of a tubercular arthritis. From a clinical standpoint—the standpoint from which this article is written—it does not appear possible to the authors to accurately diagnose the situation of the primary lesion in more than a few cases; nor is it possible to differentiate between a small tubercular

focus in the acetabulum and one in the head or neck of the femur, and often it is not possible, for some time, to differentiate between a condition which will ultimately result in the separation of the head of the femur, and one in which will end in the separation of the great trochanter. Further, we are not able to point out the difference between tuberculosis immediately within the capsule and the same state of affairs immediately without that membrane. From a clinical standpoint we can only approximately locate a lesion, which, unrestricted, ulti-

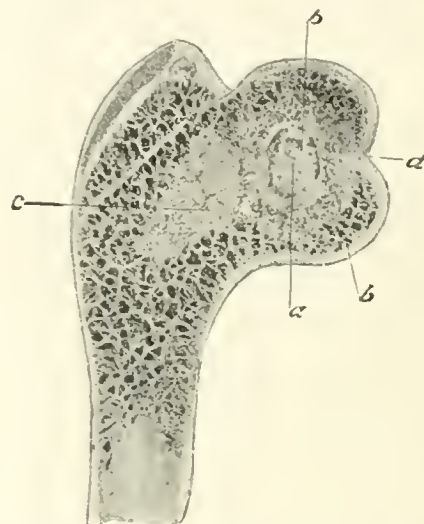


FIG. 1.—Primary tubercular infection in the head of the femur. *a* Cheesy sequestrum; *b*, tubercular infiltration; *c*, pressure groove from resting against the upper rim of the acetabulum, the head being partly displaced from the cotyloid cavity.

mately involves all or nearly all of the neighboring tissues; which under treatment usually recovers, leaving us still in doubt as to its precise habitat, and which wherever be its origin demands one and the same treatment. This then in a routine way we characterize by the general term, hip disease.

Tuberculosis at the hip-joint usually commences as a primary (Fig. 1) or secondary (Fig. 2) osteitis, and more frequently in the femur than in the aceta-

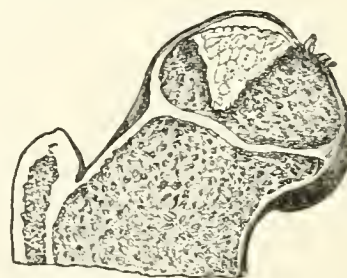


FIG. 2.—Secondary tubercular infection; cone-shaped cheesy sequestrum; cartilage lifted up as a vesicle.

bulum. It may undoubtedly commence as a primary tubercular synovitis, but many cases of synovitis follow from a traumatic rather than from a tubercular origin. Peri-arthritis inflammation seems to derive its origin more frequently from the infectious fevers than from other causes. The favorite habitat of these lesions in the children of syphilis is in the neighborhood of the epiphyseal line.

However the joint disease may commence, it is at the beginning, or very soon becomes tubercular. In the same way, wherever the lesion may be primarily found, if left untreated it goes progressively on,

¹⁵ If cases 1 and 2 should develop into unmistakable *tabes*, they will be illustrations of its earliest stages; if not, they must serve simply as examples of the eye symptoms common to that disease, and must be regarded as idiopathic or forerunners of some other central nerve affection than *tabes*. The conclusions are drawn from case 3, and those recorded in the literature.

extending from part or one tissue to another until all the structures composing the joint become involved (Fig. 3), and the result is a tubercular arthritis. It is, then, with a tubercular arthritis, more or less complete, that we have to deal in discussing the symptoms, prognosis, and treatment of hip disease.

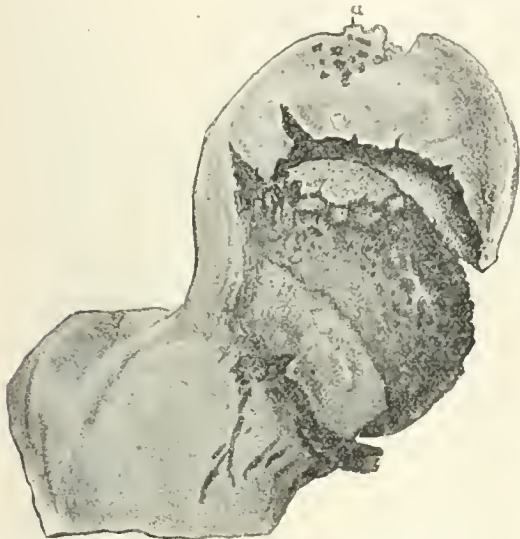


FIG. 3.—Cone-shaped sequestrum abutting against the cartilage, which is perforated with numerous holes and tilted away from the whole head of the bone.

Symptoms.—Almost invariably the first symptom noticed is a slight limp. This usually begins before there has been any complaint of pain, and it remains until a cure has been effected, and not infrequently it persists to the very end of life. In a few cases there may be one or more intervals of intermission during the early months of the disease. The limp

difficult or impossible from the sensitiveness of the joint and its inability to sustain the weight of the body. Nevertheless the limp characteristic of hip



FIG. 5.—Early stage of hip disease. Flexion and abduction—false lengthening.

disease is not one of pain; it is rather one of impaired function.

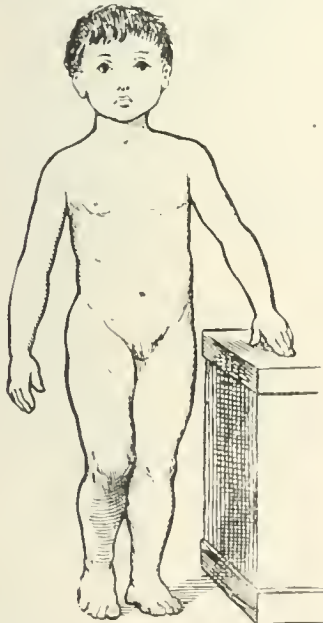


FIG. 4.—Early stage of hip disease. Flexion of right leg without noticeable lateral deformity.

is due to the inability of the patient to fully extend the thigh on the pelvis more than to any sensitiveness of the joint to weight-bearing; although in untreated cases, and in very many that are subjected to treatment, there comes a time when walking is



FIG. 6.—Disease of the right hip. Flexion and adduction.

As a rule the patient very early in the disease becomes restless in sleep, and may cry out without fully awakening. The cry is peculiar, and consists in a sudden, sharp, frightened scream, occurring during the first hours of sleep. These night cries commonly precede and almost invariably accompany a period of pain. They have been considered as

characteristic of osteitis, though there can be no doubt of the presence of osteitis in certain cases where no night cries are heard; it is more probable that they are indicative of a rather rapid develop-

months, and often years before the joint is cured, and patients with non-suppurative, and at times with suppurative, hip disease, may never feel the least pain from the commencement of the limping

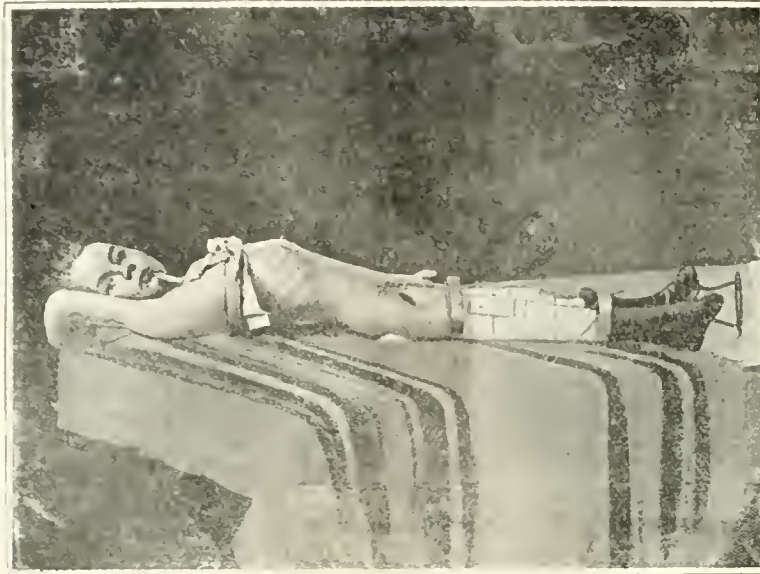


FIG. 7.—Same case as shown in Fig. 6, with flexion and adduction reduced.

ment of a tubercular abscess under tension. The symptom is valuable in the early stage of the disease, only as corroborative of other symptoms, and as a hint to the prognosis of abscess.

all through the three or four years' course of the disease to a cure, resulting perhaps in a perfectly archylosed joint. When pain is present it is usually complained of at the inner side of the anterior surface

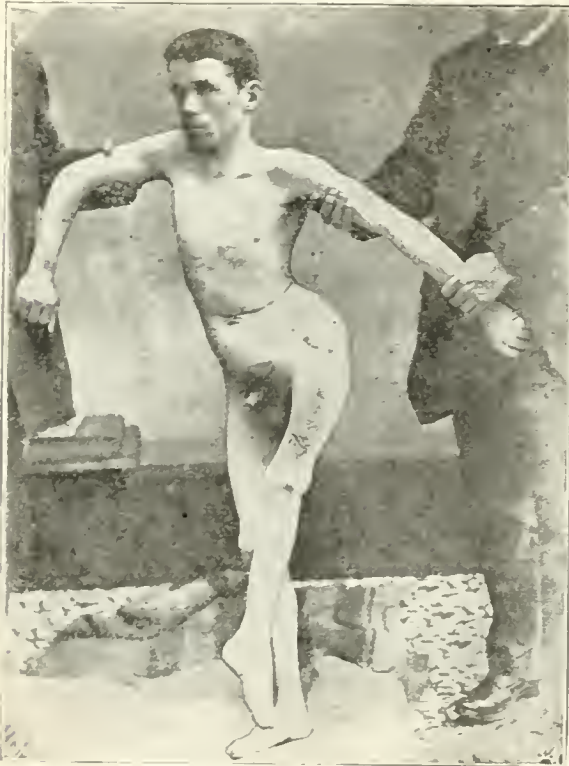


FIG. 8.—Disease at the left hip. Untreated case. Flexion, adduction and outward rotation.



FIG. 9.—Disease of left hip. Marked flexion, outward rotation and adduction.

Pain is usually complained of at some time during the course of hip disease, but the fact must not be lost sight of that it is rarely complained of until long after limping has appeared. It disappears

of the knee, but it may be felt at any part of the hip or thigh; like the night cries it is a corroborative rather than a diagnostic symptom. It is indicative

of an osseous lesion, and, coming on or growing worse without assignable cause during the course of treatment, should be considered as pointing to the development of abscess.



FIG. 10.—Same case as Fig. 9. Hip splint on. Deformity reduced.

Inspection of a case of disease stripped for examination, reveals flexion of the thigh upon the pelvis (Fig. 4) with or without accompanying abduction or adduction. Most cases present one or the other lat-

Abduction when present usually accompanies the early stage of the disease (Fig. 5), and has been looked upon as indicative of effusion within the joint, but of this we do not feel certain. We have observed it late in the disease, and in cases where we have never been able to make out fluctuation. This position of abduction gives a false lengthening to the limb, and is the cause of the obliteration of the buttock fold.

Adduction usually succeeds abduction; and is always present late in the disease unless prevented by the nature of the treatment (Fig. 6). It is usually associated with flexion, although the treatment may have reduced, or prevented, flexion and the adduction



FIG. 12.—Flexing the well limb on the chest develops flexion in the affected member. The patient is unable to put the left limb down upon the table.

may remain. It is usually accompanied with some degree of inward rotation. In old and neglected cases outward rotation may accompany the flexion and adduction (Fig. 8). Outward rotation or eversion of the limb is usually associated with abduction, but the reverse may occur, as already pointed out, and inward rotation with adduction. The cause of these malpositions has not been absolutely determined; but it would seem probable that the position of the tubercular focus together with the assumed attitude of the patient determines the malposition. The patient assumes the attitude of greatest comfort whether lying, sitting or stand-



FIG. 11.—Testing the movements at the hip joint.

eral deformity, but the rule is not invariable, and some cases run their course and go on to a great degree of flexion without either abduction or adduction.

ing, and this strongly influences the deformity in the early stages of the affection. Later the malposition is determined by the unbalanced force existing between the opposing groups of muscles in their effort

to immobilize the joint, or between the muscular groups on the one hand, and the mechanical device employed in the treatment of the disease on the other hand.

Muscular shrinking, generally believed to be due to reflex influence, comes on early, is very constant, and may be regarded as a very valuable symptom. It has been claimed by careful observers that this muscular atrophy is due solely to disuse, inasmuch as it bears no constant relation to any other factor involved; but we have observed a case in which the limp had been present for only two weeks, and in which there had been no pain and no cessation from usual avocation, and yet in which there was found a circumferential measurement one inch less than that of the opposite thigh, a difference which went on

the diseased limb until all lordosis is corrected, and the pelvis is in a normal position. He applies a tape measure along the outer border of the limb in a line with the femur, commencing at the point where it diverges from the table. He measures the length to any point, and the length of a perpendicular from that point down to the table. The decimal fraction obtained by dividing the length of the perpendicular by the length measured along the limb will give what mathematicians call the sine of the angle. By consulting a book of mathematical tables the angle is found. G. L. Kingsley measures a constant length of twenty-four inches along the thigh, and then publishes a table showing the angle corresponding to the length of each perpendicular. For the convenience of readers we append Kingsley's tables.



FIG. 13.



FIG. 14.

FIG. 13.—Shows the normal arching of the spine in a healthy person, which can be voluntarily effaced, as shown in Fig. 14.

increasing at a less but at an unusually rapid rate during the succeeding fortnight before the application of apparatus. The fact that we did not know the relative sizes of the thighs before the limping commenced renders this case of no absolute value in controversial argument, but we are much inclined to believe that there is present in these cases a shrinking of the muscular masses over and above that due to disuse, or to the constricting effects of the dressings used. Muscular shrinking is so constant a symptom that it may be regarded as of great diagnostic value.

To measure for abduction and adduction the method of R. W. Lovett, of Boston, is the readiest and best.

KINGSLEY'S TABLE.

In.	Deg.	In.	Deg.	In.	Deg.	In.	Deg.
0.5	1	6.5	16	12.5	31	18.5	50
1.0	2	7.0	17	13.0	33	19.0	52
1.5	3	7.5	19	13.5	34	19.5	54
2.0	4	8.0	20	14.0	36	20.0	56
2.5	5	8.5	21	14.5	37	20.5	58
3.0	6	9.0	22	15.0	39	21.0	60
3.5	7	9.5	23	15.5	40	21.5	63
4.0	8	10.0	24	16.0	42	22.0	67
4.5	9	10.5	25	16.5	43	22.5	70
5.0	10	11.0	26	17.0	45	23.0	75
5.5	11	11.5	27	17.5	47	23.5	80
6.0	12	12.0	28	18.0	48	24.0	90

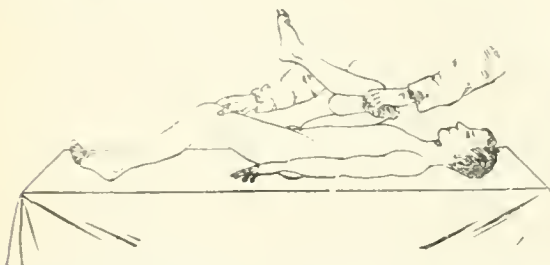


FIG. 15.—Thomas's flexion-test position: elbow hooked through the knee, and forearm carried across the chest. The affected left limb cannot be forced down upon the table.

Shortening may be either actual or practical. Actual shortening is due either to arrested growth, to actual bone destruction, or to partial or complete subluxation. None of these conditions are found early in the disease, but an accurate record should be kept, for in this way the prognosis as to the ultimate length of the limb can best be judged. Practical, or false, shortening is due to adduction or flexion, or both (Fig. 9). It is from the relation of the actual to the practical shortening that we conveniently compute the degree of adduction.

The extent of flexion caused by the deformity may be estimated in the following manner: Whilst the patient is on his back, on a table, the surgeon lifts

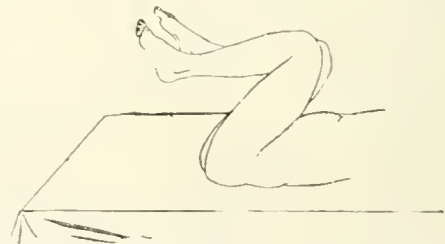


FIG. 16.—The diagnosis of hip disease in an infant. Disease in left hip. Lack of perfect flexion.

The patient is made to lie straight with the legs parallel. The surgeon now measures for real and for false shortening. Real shortening is found by measuring from the anterior superior spine of the ilium to the inner malleolus on either side and comparing them. False or practical shortening is estimated by comparing the distance between the umbilicus and the inner malleolus on either side. The difference in inches between the real and false shortenings is noted. We then measure the distance between the anterior superior spines of the ilia. Having obtained this information we turn to Lovett's table. If the line which represents the amount of difference in

inches between the real and apparent shortening is followed until it intersects the line which represents the pelvic breadth, the angle of deformity will be found in degrees, where they meet. *If the practical shortening is greater than the real shortening, the diseased leg is adducted; if less than the real shortening, it is abducted.* Take an example: length (from anterior superior spine) of right leg, 23; left leg, 22½; length (from umbilicus) of right leg, 25; left leg, 23; real shortening, ½ an inch; apparent shortening, 2 inches; difference between real and practical shortening, 1½ inches; pelvic measurement, 7 inches. If we follow the line for 1½ inches until it intersects the line for pelvic breadth of 7 inches, and we find 12° to be the angle of deformity, as the practical shortening is greater than the real, it is 12° of adduction of the left leg.

LOVETT'S TABLE.

		Distance Between Anterior Superior Spines in Inches.																	
		3	3½	4	4½	5	5½	6	6½	7	7½	8	8½	9	9½	10	11	12	13
Difference in Inches between Real and Apparent Shortening.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15

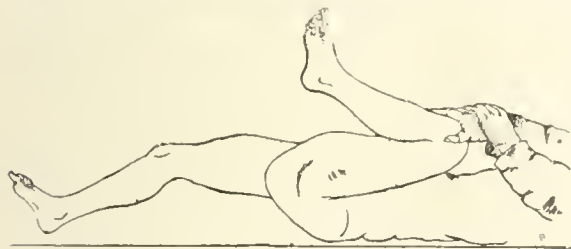


FIG. 17.—Fitting of the pelvis giving false flexion of right thigh.

Actual lengthening of the diseased member rarely occurs, but we have observed it during the course of treatment by the long traction hip-splint. The importance of an accurate record of the angle of flexion and adduction, or abduction, is of the greatest importance. Upon it, and upon it alone at times depends the diagnosis of the disease; and upon it depends the diagnosis of a cure in all cases resulting in ankylosis. A joint in which the angle of deformity is changing is capable under proper treatment of gaining a still greater degree of usefulness. In a case destined to result in ankylosis a cure is not effected until the angle of deformity ceases to change.

The involuntary muscular spasm, which restricts the motion of the joint or absolutely limits it, is the diagnostic symptom of joint disease. It is the first symptom to appear and the last to disappear, and it is the only symptom upon which dependence can always be placed in making the diagnosis. It is believed to be of reflex character and to be due to the irritation of the nerves which supply the joint. It affects only the muscles which control the movements of the diseased joint, but it affects all of them. Upon this depend the diagnosis of the disease and the differential diagnosis from affections which

closely simulate the disease. Lack of normal extension and rotation is usually more noticeable in the first weeks of the disease than are restrictions to flexion and to lateral movements; but a careful comparison between the movements possible at the two hip joints will make the defect apparent to one who has become at all familiar with this peculiar symptom. To describe the nature of the spasm is scarcely possible; it is one of those things better learned by touch than by description. In attempting any of the normal passive motions at the joint (Fig. 11) it will be found that in most cases motion is quite free to a certain point; it is there checked, not with the slow elastic resistance of voluntary muscular opposition, nor with the sudden dead stop of fibrous adhesions, but suddenly and positively. Once felt, it is always to be recognized.

Abscesses occur in about half of all the cases in which treatment is not commenced very early. They may be present in any relation to the joint, but the most frequent position for the first abscess to appear is somewhat below and to the inner side of the anterior superior spine of the ilium. The abscess may appear early in the disease or at any time during its course. It is usually ushered in by a period of pain,

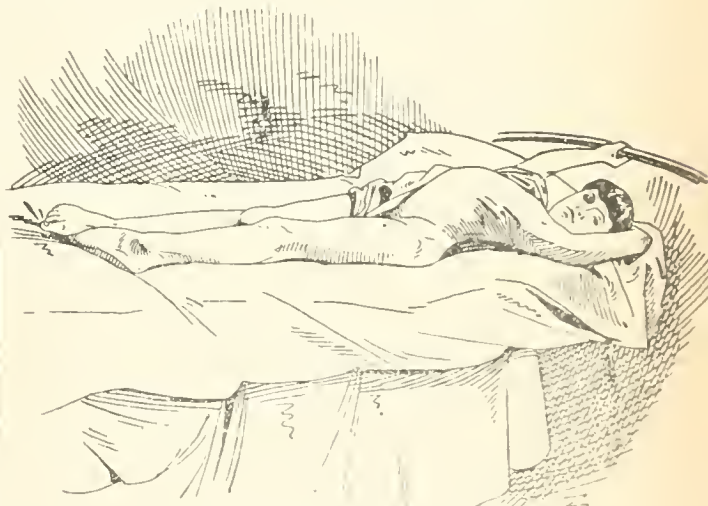


FIG. 18.—Hysterical hip, the left.

night cries, and increase of deformity; flexion is always present, and abduction is frequently found in early abscesses, while adduction is more frequently met with later in the disease. During the treatment of the disease any exacerbation of pain or tendency to deformity, unless there has been some well-recognized traumatism, is suggestive of the formation of abscess and warrants that prognosis. The first objective sign is a brawny feeling in front of the joint; this is or soon becomes tender to pressure, ultimately softens in its centre and fluctuation may be made out. The area of fluctuation extends, the extension usually being in the outward and downward direction, and at times fully two-thirds of the upper, outer, and anterior portion of the thigh is occupied with a fluctuating tumor. The abscess may, however, appear posterior to the great trochanter, or it may find its way through the acetabulum, and be made out within the iliac fossa, whence it rises up over the brim of the pelvis, following much the same course as a psoas abscess, and on reaching the thigh occupies its anterior and inner aspect. In some cases it simulates an anal abscess, and after spontaneous opening the

persistence of symptoms suggests a fistula in ano. Much care is required in differentiating it. The course of an abscess left untreated is to spontaneous opening and evacuation. If the abscess opens or is opened early, the pus is thick, yellow, and creamy in character; later on the solid contents separates itself from the fluid, and the abscess cavity is filled with a clear liquor, like whey, in which float large or small curds of fibrin. The abscess opening spontaneously at this time discharges at once the whey-like fluid, and the fibrinous curds come away later according to the size of the opening. If, however, the joint be treated by rest, very many cases do not go on to spontaneous opening; the abscess passes through the stages already indicated of a creamy pus succeeded by a thin serous fluid floating flakes of fibrin; when the fluid is absorbed and the fibrinous masses remain. Frequently, the sac containing these fibrinous curds will become cut off from the joint, and remain quiescent for months or even for years, then rapidly liquefy and empty itself spontaneously, or the contents may be absorbed, undergoing what is believed to be a fatty degeneration. Rarely, during the development of abscess, is there any especial fever or constitutional symptom except such as may be attributed to the pain; and the pain is felt only while the abscess is intra-capsular or is subperiosteal; when once the pus has escaped from the bone or joint, the suffering ceases and almost invariably the general health of the patient improves. The course of the sinuses, which remain after the spontaneous opening of the abscess of hip disease, is towards closure, at least when carious bone is no longer to be drained. A sinus leading to a cavity not connected with carious bone will usually close within a few weeks; one leading to carious bone will remain open until the bone is thrown off, or removed, or drained through some other channel. These spontaneous openings show a much greater tendency to closure than do the sinuses remaining after operative interference; especially is this true if the operative interference has been accompanied with the use of the rubber drainage-tube, the sinuses from which show very little tendency to closure. The course of these abscesses, treated by aspiration, depends entirely upon the nature of the contents, and whether or not they are connected with carious bone. The creamy abscess can generally be aspirated, but it is usually connected with carious bone, and almost invariably refills. The abscess containing the whey-like fluid and fibrinous curds can rarely be evacuated, even through a needle of trocar size, and these also usually refill when aspiration has been attempted. The course of abscess under treatment by incision also depends upon the nature of the abscess cavity; if all the tubercular material at the osseous focus can be removed, it may be expected that primary union will result, otherwise a sinus remains more subject to septic infection than the sinus resulting from spontaneous opening.

Diagnosis.—The diagnosis of hip disease is rendered comparatively easy by what is known as the Thomas flexion-test. This is founded upon our inability to extend an inflamed hip without producing lordosis. By lifting the sound knee until it touches the chest the pelvis is fixed and the spine is straightened (Fig. 12). If there be hip disease the patient is unable to extend the thigh on the diseased side and it remains at an

angle. If disease is absent the leg can quite easily be made straight. Few surgeons seem to have observed that if we take any healthy subject and lay him flat upon a table or other hard plane we can easily pass our hand under the lumbar vertebræ (Fig. 13), but if we ask the subject to touch the table with his back he is able to obliterate the hollow without lifting his limbs (Fig. 14). We have here therefore a very ready guide for the detection of deformity. In no case of hip disease is the patient able to straighten his spine, until art has steeped in and corrected the flexion deformity.

The application of the flexion test (Fig. 15) in the case of an infant requires considerable delicacy. A child of two or three years old is brought for examination. A vague history of irritability may be alone complained of, or pain may be occasioned while the child is washed. The surgeon is to find out in the first place whether there is an inflamed joint and if so, on which side. The child is gently put upon the table while the surgeon without exciting alarm holds a knee in either hand. The thighs are slowly flexed towards the chest, when it is observed that one easily yields to full flexion while the other becomes a little rigid (Fig. 16). The stiff hip is then gently allowed to fall while the sound one is fully flexed. It will then be perceived that the diseased limb remains at an angle and cannot be fully extended. Stress must be laid upon the necessity of not startling the child and in not using the slightest force; while care must be taken first, not to flex the pelvis upon the spine (Fig. 17), and secondly, to conduct the examination upon an even flat surface. Although this test is not absolutely diagnostic, if the hip be complained of and pelvic, vertebral, sacro-iliac and malignant disease be negatived, one can fairly infer the presence of coxitis.

Differential diagnosis.—Hip disease is perhaps more often confounded with Pott's disease at the lumbar spine than with any other one condition. In Pott's disease the only motions at the hip joint which are restricted are those in which the psoas muscle is put upon the stretch, namely, extension and inward rotation while in the fullest possible extension.

Sacro-iliac disease restricts the motions at the hip joint in precisely the same way as does Pott's disease, flexion, and rotation during flexion, being perfectly free.

The neuromimetic or hysterical hip (Fig. 18) is the most difficult of all to differentiate. All the subjective and many of the objective symptoms of true hip disease may be present. In untreated cases, however, muscular shrinking is rarely present; and the muscular resistance to attempted passive motion is somewhat different to the trained touch from that experienced in true disease. Furthermore hysterical condition are rarely present except in young women, and the history of repeated attacks together with the facial expression often gives a hint in the right direction.

Congenital dislocation and infantile paralysis have both been mistaken for hip disease, but a careful examination should exclude such a mistake. In both the range of motion is nearly normal, or greater than normal, in some or all directions; there is no muscular spasm and no history of pain or suffering.

Prognosis.—In considering the prognosis, the duration and the ultimate result as to life, the deformity, and the usefulness of the limb have to be taken into

account. Of cases of hip disease not subjected to operative interference, only about 8 per cent. die. Nearly all of these die from tubercular meningitis: a few die from waxy degeneration of the liver and kidneys following upon prolonged suppuration. Tubercular meningitis may attack a patient during the early months of the disease, during its later course, or when about cured, or even months after a cure has been effected. It does not seem to bear any relation to the development or course of the suppuration in unoperated cases, but it does seem to have a direct relation to those that have been subjected to the operation of incision and erosion, or scraping, of an abscess cavity. The patient attacked with tubercular meningitis, so far as we know, always succumbs to the disease.

The duration of hip disease under efficient mechanical treatment is from one to three years, although cases do sometimes continue for much longer periods. The ultimate result as to deformity depends upon the mechanical appliances used in the treatment, upon the care which the patient receives from the surgeon, and upon his home surroundings; few, if any, cases should be allowed to recover with other deformity than the shortening due to arrested growth and actual bone destruction, though as a matter of fact not a few cases to-day do recover with some degree of flexion and adduction. The amount of actual shortening depends upon the duration of the disease and the location of the tubercular focus more than upon the amount of suppuration. Some cases that have had several abscesses recover without shortening, while others that never have had abscesses recover with marked shortening. The shortening is rarely more than an inch in cases where subluxation has not occurred; but as time goes on and growth takes place after the cure has been effected, a few cases show an increased degree of difference in the lengths of the two legs, then as much as two or three inches difference may be found. If the joint be enchylosed, or nearly stiff, and if there be some degree of flexion and adduction, shortening becomes a serious disability, but if the joint motion be of fair extent and if there be no flexion and a possibility of movement in the direction of abduction, compensatory lengthening takes place, and a real shortening of from one to three inches may not require any artificial lengthening of the member to render walking comfortable and graceful. A certain number of joints recover ankylosed, or with so little motion, that for the purpose of use the ankylosis might as well be complete; their number is uncertain, but the stiffness appears to depend upon the duration of the disease, the severity of the inflammation, and the inefficiency of the immobilization. Stiff joints do not result from immobilization, but from the lack of it, and suppuration is no indication that stiffness must result. We have seen cases that have had as many as six sinuses recover with normal motion, and on the other hand other cases in which no suppuration was ever made out recover with perfect stiff joints. Cases that never have been immobilized not infrequently recover with perfect ankylosis, while numerous cases perfectly immobilized for as long as six years have recovered with practically normal mobility. To attempt the prognosis of any individual case at the time of the first observation should not be attempted. It is not possible to tell how any case may turn out. Nothing

more than a guess can be formulated, and this must be founded upon the family history, the general physical condition of the patient, the duration of the symptoms, the existing condition of the joint, the surroundings of the patient, the care he is likely to receive, and the faithfulness, or the contrary, with which he may be expected to follow the directions given.

COMPARISON OF MARKET FLUID EXTRACTS AND THEIR RELATION TO FIFTY PER CENT. TINCTURES.

Read in the Section of Materia Medica and Pharmacy, at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

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The question of the variability of fluid extracts as made from different lots of drug, by different manipulators, has often been discussed, and the suggestion has been made that if substituted by 50 per cent. tinctures, retail pharmacists could profitably make their own products.

It has even been asserted that 50 per cent. tinctures would average to be as strong as many market fluid extracts.

To arrive at an impartial verdict we have kept the record of 300 lots of fluid extract of dandelion U. S. P., and 250 lots of fluid extract of wild cherry U. S. P., made by as many operators from four uniform lots of drug.

The dry extractive from the dandelion was 26, 28, 30 and 35 per cent.

The range obtained by the 300 students was from 8.5 per cent. to 31 per cent.

The glycerin extractive from the wild cherry was 27, 28.8, 26.8 and 31 per cent.

The range obtained by the 250 students was from 14.4 to 31 per cent. Fifty-two different drugs were then selected, submitted to assay for extractive, alkaloid, etc., and made into fluid extracts by twelve members of the graduating class.

A similar line was made by one of my assistants and the assays made by a second assistant.

Two hundred and fifty market samples of fluid extracts were submitted to examination by the same parties.

A small line of 50 per cent. tinctures, made in duplicate, at different times, under the ordinary vicissitudes of store work, was made and examined by Mr. Newhall. The various results are embodied in the accompanying tables.

In considering these figures certain allowances should be made: First, some of the workers may have been more careful and obtained closer results than others; second, the moisture in the drugs was found to vary from 5.5 to 20 per cent., so that using the same menstruum with such drugs, there is variation by hydration. In one case a 45.5 per cent. alcohol becomes 43.22 per cent., and in the other 37.9 per cent.

A dry drug containing much gum or albuminous matter percolated with strong alcohol, may abstract water and increase the alcoholic strength by one or more per cent.

In all the tables where alcoholic strength of menstruum is referred to, per cent. in absolute alcohol by weight is indicated.

The alcohol strength of the fluid extracts was found by mixing 25 G. with 100 G. of water, distilling 100 G. in a properly sealed apparatus, taking sp. gr., finding alcohol weight strength of distillate by U. S. P. 1880 tables and multiplying by four. This gives the alcohol strength of the fluid extract.

To find the alcohol strength of the menstruum, the following method was employed:

As the extractive occupies the space of liquid, by subtracting the per cent. of extractive from 100, we have the weight of liquid in the fluid extract, and dividing the per cent. of alcohol in the fluid extract by the weight of liquid, gives the per cent. of alcoholic menstruum used.

A fluid extract gives 40 per cent. alcohol and 20 per cent. extractive; 100 G. less 20 G. leaves 80 G. of liquid; then 80: 100:: 40 per cent.: 50 per cent.

Third. Extractive is no positive criterion of the therapeutic value of a drug, but may furnish a method of determining exhaustion.

The quantity of extractive, the quality of the extractive, and physical incompatibilities of the fluid extract are, of course, entirely changed by slight variations in menstruum.

Extractives were determined by evaporating to near constant weight on a water bath. In extractives containing glycerin there is a constant, gradual loss from evaporation of glycerin.

Different lots of the same drug may vary 70 per cent., as from 14 to 24.

Fourth. Temperature alters the action of extraction. A range of 15° F. with same rate of flow at low temperatures, may make a difference of 10 per cent. more or less in the extractive from the same drug, by the same menstruum. That is, a range of 27 to 30 per cent., or 18 to 20 per cent.

Fifth. The relative amount of extractive obtained by exhausting 10 G. of drug with a menstruum may differ from that obtained from 10,000 G. of the same drug, owing to longer contact and greater alteration of the menstruum from its becoming a compound solvent.

Sixth. The therapeutic effect is affected by alcoholic strength.

NOTES.

Aromatic Powder.—A variation of over 300 per cent.

Belladonna Root.—Great variation in menstruum. The market samples with weak menstruum give a very dark-colored fluid extract whose high gravity is increased by glycerin. They will not make the U. S. P. lin. belladonna. The U. S. P. is a very light brown product.

Benzoin.—A variation of 400 per cent. One weaker than the U. S. P. tincture.

Benzoin Compound.—Tincture made from label directions varied from 9 to 19 per cent.

Buchu.—Market samples green in color and excessive in alcohol strength. U. S. P. 1880, olive brown. See 50 per cent. tinctures in comparison.

Cascara.—For therapeutic value of different constituents, effect of old and new bark and comparison of fluid extracts, see thesis by A. A. Burnham, Massachusetts College of Pharmacy. Another investigator claims to have found nux vomica in some specimens of fluid extract of cascara.

Cotton Root.—Notable variations.

Cramp Bark.—Variation of nearly 100 per cent. in extractive, 300 per cent. in alcohol.

Dog grass.—Made by U. S. P. method has a different flavor than when made by repercolation.

Ergot.—One sample only as weak as a 50 per cent. tincture.

Grindelia.—Variation in color is made by difference in alcohol strength.

Hydrastis.—Note variation in alcohol. In addition, samples of so-called aqueous goldenseal and samples of colorless were examined.

Ipecac.—Market samples were entirely different from U. S. P. in alcohol and resin. Evidently made by repercolation instead of the tedious U. S. P. method.

Marigold.—Very likely to gelatinize with weak alcoholic menstruum.

Quassia.—Variation of 150 per cent. in alcohol.

Sarsaparilla.—Variation of 200 per cent. in extractive and 120 per cent. in alcohol. Samples of compound fluid extract found to be made in some cases from oil of wintergreen and sassafras, without drug. So made, they mix freely with syrup, while U. S. P. will not.

Sculleap.—Made with U. S. P. menstruum will not remain clear.

Squill.—Variation of over 700 per cent. in extractive and 800 per cent. in alcohol. Made with weak menstruum has rich, deep color, having no resemblance to the U. S. P., in taste is much pleasanter, and mixes with syrup. U. S. P. is pale amber color and is bitter.

Wild Cherry U. S. P., represents all the astringent, sedative, tonic power of the drug, but cannot mix with syrup or aqueous vehicles. Market substitutes in no case represent the U. S. P.

H. A. Baker, class 1886, found fld. ext. U. S. P. 1880, made from virgin bark, to contain 3.06 drops of 2 per cent. hydrocyanic acid to a fluid dram. By repercolation, 3.32 drops. By 1870 method, 2.46 drops. 1860 method, 1.29 drops. Market sample, .84 drops. Syrups, .447 and .48 drops.

Page found in market samples 3 drops, 2.8 drops and 2 drops, but little bitter principle. All were made to mix with syrup.

It is seen that fluid extracts average much stronger than 50 per cent. tinctures.

Name of Fld. Ext.	Ext. found in Drug.	Per cent. Absolute Alcohol in Menstruum used.	Extractive found in fluid Ext.	Per cent. Absolute Alcohol found in menstruum.	Student.
Aromatic Powd., U. S. P.	2.04	91	10.02	67	Kaulback
" " " Repere			10.91	68	
" " " No. 1 Com.			7.7	69	
" " " No. 2 "			6.11	58	
" " " No. 3 "			2.34	46	
" " " No. 4 "			7.4	89	Assistant.
Belladonna Rt., U. S. P.		91	5.6	92	Bickford.
" " " Repere			7	89.6	
" " " No. 1			16.3	68	
" " " No. 2			16	58	Alka-
" " " No. 3			15.4	57	loid.
" " " No. 4			9	.3	Assistant.
" " " No. 5				91	.4
" " " No. 6			10	.42	.44
Benzoin, own		91	62.6		Page
" " " No. 1			43.9		Ext. in U. S. P.
" " " No. 2			35.3		Tint. 14.20%
" " " No. 3			12.06		
" " " No. 4			38.4		Assistant.
Benzoin Compound, own		91	68.8		Page
" " " No. 1			53.8		Ex. in U. S. P.
" " " No. 2			36.5		Tr. 19.27%
" " " No. 3			35.6		By labels 9 to 19%
" " " No. 4			77		
" " " No. 5			42.8		Assistant.
Boneset, U. S. P.	19.8	45.5	22.3	43.03	Sargent.
" " " Repere			22.8	43.67	
" " " No. 1			21.6	40.15	
" " " No. 2			23.4	40.15	
" " " No. 3			23.6	43.4	
" " " No. 4			27.6	43	Assistant.

Name of Fld. Ext.	Ext. found in Drug.	Per cent. Absolute Alcohol in Menstruum used.	Extractive found in Fluid Ext.	Per cent. Absolute Alcohol in Menstruum.	Student.	Name of Fld. Ext.	Ext. found in Drug.	Per Cent. Absolute Alcohol in Menstruum used.	Extractive found in Fluid Ext.	Per Cent. Absolute Alcohol in Menstruum.	Student.
Blackberry Rt. U. S. P.	34.3	41.	inc. glyce.	32.65	44.	Whittemore.	Cornus, No. 1		11.9	15	68
" Reperc.		Glyce. 20	31.3	43.8		" No. 2			10.8		40
" No. 1			20.9	36.9		" No. 3			12.9	19	51
" No. 2			20.9	20.6		" No. 4			inc. glyce.	25	Assistant.
" No. 3			32.6	47.9		" No. 5			28	34	
" No. 4			40.7	40.		Cotton Root Bark	25.75	50 Alc.	25.6	42	Whittemore.
" No. 5			37.2	39.5	Assistant.	" Reperc.		35 Gly.	20	70	
Blue Cohosh, U. S. P.	25.6	68.25	22.4	59.8	Whittemore.	" No. 1			17.5	47	
" Reperc.			19.3	66.8		" No. 2			7	41	
" No. 1			20.3	64.4		" No. 3			8	62	
" No. 2			19.7	49		" No. 4	41	inc. glyce.	30.2	60	Assist.
" No. 3			24.5	83		" No. 5			35	59	
" No. 4			23.7	67		Coto Bark	18.5	80	24.8	70	Kaulback.
" No. 5	24.7		23.7			" Reperc.			23.8	67	
Buchu (Short), U. S. P.	25.	60.7	26.9	62	Stearns.	" No. 1			23.8	68	
" Reperc.			25.1	72		" No. 2			13.9	60	
" No. 1			8.5	85		" No. 3			11.3	58	
" No. 2			18.3	83		" No. 4			11		
" No. 3			18.4	60		" No. 5			23	70	Assist.
" No. 4	24.6		23.8	60	Assistant.	" No. 6			21	78	
" No. 5			26.1	59.5		Cramp Bark		60.6	22.2	62	Bickford.
Butternut Bark, U. S. P.	23.3	45	22.4	44	Kaulback.	" Reperc.			21.5	62	
" Reperc.			18.6	42.1		" No. 1			13	54	
" No. 1			18.7	44		" No. 2			12	42	
" No. 2			23.9	42.2		" No. 3			12	16	
" No. 3			16.9	43		" No. 4			19.8	51	Assist.
" No. 4	25.		21.1	42	Assistant.	" No. 5	55		23	53	
" No. 5	11.		15	43		Digitalis, U. S. P.	30	68	27.6	64	French.
Calamus, U. S. P.	13.9	91	16.2	88.5	Sargent.	" Reperc.			23	70	
" Reperc.			15.8	89.2		" No. 1			20	40	Palm's
" No. 1			12.5	81.9		" No. 2			34	26	Digitalin
" No. 2			14	84.4		" No. 3	28.8		29.8	65	Assist.
" No. 3			14.3	86.1		" No. 4			25	66	24
" No. 4	17.5		16	88	Assistant.	Doggrass, U. S. P.	36	18	39.8	18	Sargent.
Cannabis Indica, U. S. P.	91		18.4	91.3	Resin. 12.8 Glover.	" Reperc.			40.8	17	
" Reperc.			15.6	88	12.4	" No. 1			34	15.5	
" No. 1			9.88	89.5	8.6	" No. 2			38.8	15.2	
" No. 2			10.75	88	9.3	" No. 3			39.4	15.4	
" No. 3			16.7	87.5	13.6	" No. 4	13		42	16.0	Assistant.
" No. 4			10.5	92	8.7	" No. 5			37.6	15.5	
" No. 5	15.4		14	90	8.2 Assist.	Ergot, U. S. P.	16	39	16	38	Sampson.
" No. 6	13.2		13.6	89.5	10.2	" Reperc.		HCl	11	37	
Cascara, own	30.3		34		Sampson.	" No. 1			22.4	38	
" Reperc.			30.4			" No. 2			16	37	
" No. 1			22.6			" No. 3			10	25	
" No. 2			22.4			" No. 4	16.2		15.4	40	Assistant.
" No. 3			20.2			" No. 5	18.4		17.6	39	1-23.8 extractive.
" No. 4	30.8		20.10	31	Assist.	Frangula, U. S. P.		30.3	26	28	Stearns.
" No. 5	30.8		30.6	29		" Reperc.			23	37	
Chirata, U. S. P.	9.75	40.5	Without Glyce. Glyce.	8.7 6.35	45.7	" No. 1			15	40	
" Reperc.		10. glyce.	5.8 6.3	43	Barnard.	" No. 2			28.2	45	
" No. 1			6.7 6.2	48.7		" No. 3			28.5	53	Assist.
" No. 2			4.8	48.5		" No. 4			20.8	30	
" No. 3			7.15 1.5	42.4		" No. 5			26	29	
" No. 4			inc. glyce.	15	40	Gentian, U. S. P.	39.5	45.5	29	44	Barnard.
" No. 5				19	39	" Reperc.			27	Glyce. 45.7	
Cimicifuga, U. S. P.	91		14.6	91	Stearns.	" No. 1			29	6.5	65
" Reperc.			13.3	86		" No. 2			21	42	
" No. 1			13.4	85		" No. 3			32	49	
" No. 2			22.4	70		" No. 4	32		32.4	44	Assistant.
" No. 3			23.9	50		" No. 5	43		40.9	42	
" No. 4	15.9		15.8	89	Assist.	Geranium, U. S. P.		41 Alc.	26	36	Barnard.
" No. 5			14.2	90		" Reperc.		10 Gly.	22	14	
Cinchona, U. S. P.	68.25		without glyce. glyce.	29.1 19	71 2.7	" No. 1			28.7	39	
" Reperc.		glyce.	23 16	70 2.5	Glover.	" No. 2			23.5	23	
" No. 1			18 33	32 2.15		" No. 3			25	50	
" No. 2			22 9	15 1.92		" No. 4			19	37	
" No. 3			14 32	61 2.3		" No. 5			32.7 9	39	Assistant.
" No. 4			17 24	68 2.01		" No. 6			29.9 8.5	40	
" No. 5			35 inc. glyce.	2.1	Assist.	Grindelia, U. S. P.		68	25.5	75	
				2.3		" Reperc.			24	70	
				2.9		" No. 1			14	80	
				4.0		" No. 2			18	39	
Colombo, U. S. P.	13.85	45.5	12.18	45.5	Barnard.	" No. 3			25	65	
" Reperc.			11.35	46		" No. 4			14	90	
" No. 1			11.95	60.3		" No. 5	27.5		25.2	66	Assist.
" No. 2			7.60	41.7		Hydrastis, U. S. P.		69	22.2		Bickford.
" No. 3			11.53	59		" Reperc.			21.6	67	
" No. 4	14.3		11.2	44	Assist.	" No. 1			20.8	68	
Convallaria, Rt.	54.6		41	56	Bickford.	" No. 2			16.2	40	Hydras-
" Reperc.			35.8	58		" No. 3			15.4	48	tine.
" No. 1			23.5	49		" No. 4	23		21.6	68	1 12
" No. 2			28	50		" No. 5			23.2	67	Berb. Assist.
" No. 3			12.6	36							2.1
" No. 4			38	52	Assistant.	Ipecac, No. 1					Ermetine.
" No. 5			36.6	50		" No. 2					32 Strong.
Corn Silk	15.5		11.7	41	Bickford.	" No. 3					34
" Reperc.			7.6	41.3		" No. 4					32
" No. 1			8.6	20		" No. 5					28
" No. 2			6	41.8		" No. 6					1.44 Assist.
" No. 3			5	15.8		" No. 7					1.71
" No. 4	12.5		12.8	43	Assistant.	" No. 8					1.00
" No. 5	9.4		9	44		" No. 9					2.10
						" No. 10					1.00
Cornus, U. S. P.	12.1	36.1 Alc.	11.15	16	41	Kava Kava	7.9	54.6	6.3	49	
" Reperc.		20 Glyce.	12.15	16	41	" Reperc.			5.9	50	
					Barnard.	" No. 1			4	50	
						" No. 2			6.5	43	
						" No. 3			7.4	67	

Name of Fld. Ext.		Ext. found in Drug.	Per Cent. Absolute Alcohol in Menstruum used.	Extractive found in Fluid Menstruum.	Per Cent. Absolute Alcohol in Menstruum.	Student.	Name of Fld. Ext.	Ext. found in Drug.	Per Cent. Absolute Alcohol in Menstruum used.	Extractive found in Fluid Menstruum.	Per Cent. Absolute Alcohol in Menstruum.	Student.		
Kava Kava, No. 1	11			7.6	53	Assist.	Squill, U. S. P.	4.5	91	5.85	81.3	Wilbur		
" No. 5				6.8			" Repere			5.89	90.7			
Kola Nut	10.4	20		12.4	18.3	1.8 Wilbur.	" No. 1			3.58	89.9			
" Repere				9	19.5		" No. 2			31.7	9.1			
" No. 1				1.8	50.8	1.8	" No. 3			35	21			
" No. 2				12.6	18.2	1.8	" No. 4			5	90.6	Assist.		
" No. 3				5.5	21	1.6	" No. 5			4.2	89			
" No. 4	14					.46 Assist.	Tolu, Sol. S. F.					Restn.		
" No. 5						1.6	" No. 1				575	Page.		
Logwood	8.4	45		10.4	43	Sargent.	" No. 2				56	13		
" Repere				9.8	42.4		" No. 3				566			
" No. 1				6.9	37		" No. 4				56			
" No. 2				7.6	40		Wild Cherry, U. S. P.		50	37.2	11			
" No. 3				7.6	42		" Repere		Water 2	37.6	23			
" No. 4				7			" No. 1		Glyc. 1	29.4	27			
Mandrake, U. S. P.	5.44	68		15.7	66	5 Day.	" No. 2		then	35.5	18			
" Repere	Resin			11.6	67	4.3	" No. 3		dil. Alc.	31.1	26			
" No. 1				15.5	67	6 Assist.	" No. 4			28.8	14.4			
" No. 2				28	40	3.25 164 Ext.	Yellow Dock, U. S. P.	24.1	45.5	26.9	44	Sargent.		
" No. 3				15.7	72	5.6 4.4 Resin.	" Repere			25	43.5			
" No. 4				10.6	48	2.75 5.3	" No. 1			22.7	41			
Marigold	36	45.5		28	32	Wilbur.	" No. 2			23.1	40			
" Repere				20	45		" No. 3			25	42			
" No. 1				13.7	75		" No. 4			27.6	43	Assist.		
" No. 2				21.2	42.3		TABLE OF 50 PER CENT. TINCTURES.—NEWHALL.							
" No. 3				15.3	72		Drug.	U. S. P. Menstrua.	Per Cent. Extractive in Drug.	Per cent. Ext. in 50% Tinct.	Do. A. Reserve 50 c.c.	Do. B. Reserve 50 c.c.	Do. C. Reserve 50 c.c.	Total Extractive.
" No. 4	35			26.4	43	Assist.	Gentian	45.5	37.7	19.5	1.3	.9	.5	41.7
Mezereum, U. S. P.	11.9	91		14.5	91	Wilbur.	Ergot	39.	18.1	20.2	.8	.7	.3	42.2
" Repere				8	92.8		" HCl	11.1	8.4	8.4	.4	.7	.4	18.3
" No. 1				7.76	69.8		Columbo	45.5	14.2	4.4	1.7	1.3	.9	12.7
" No. 2				12.3	90.2		Dandelion	38.4	32.8	4.2	1.8	1.5	.95	12.66
" No. 3				4.8	87.6		Ginger	91.	5.	16.7	.9	.5	.4	35.8
" No. 4				15.8	90	Assist.	Buchu	60.7	25.	12.2	1.3	.9	.6	26.4
" No. 5				15.8	89		Mandrake	68.25	16.8	12.1	1.2	.6	.5	26.5
" No. 6				12.8	88.6		Rhubarb	68.25	39.7	18.1	1.2	1.1	.5	39.
Nux Vom., U. S. P.	12	80		11	86	Sampson.	" Total Alk.			19.4	1.3	.6	.4	41.1
" Repere				9	80		Nux Vomica	81.	3.55	.9	.4	.4	.4	3.
" No. 1				10	80		" Strych.6	.3	.3	.3	2.8
" No. 2				4.11	85	Assist.	Coca	45.5	1.85	.8	.2	.2	.1	2.1
" No. 3				3.47	90	15 lots ranging 11.5 Ext. to 18.15 Ext. from 1.63 Alk. to 3.5 and from .55 to 1.7 Strych.	" Alk.24	.04	.0	.0	.52
Pilocarpus, U. S. P.	23.7	45.5		21	40.6	French.	"20	.10	.01	.0	.51
" Repere				17.6	46.3		REMOVAL OF THE GASSERIAN GANGLION.							
" No. 1				21.7	38.5		A Clinical Lecture Delivered at Mercy Hospital.							
" No. 2				36.4	28		BY EDMUND ANDREWS, M.D.,							
" No. 3	24 Ext. 74 Alk.					.72 Alk. Ast.	OF CHICAGO, ILL.							
P. Ash Bark, U. S. P.	15.5	91		15	89	Assist.	On Saturday, January 7, Dr. Edmund Andrews							
" Repere				14	90		performed for the fourth time, at Mercy Hospital,							
" No. 1				12.3	43.5	French.	Chicago, his operation for the removal of the Gasse-							
" No. 2				12	45.2		rian ganglion. The patient was a woman and fur-							
" No. 3				12	40.5		nished typical indications for the operation, having							
" No. 4				12.1	38.6		suffered for years with a tic douloureux of the right							
" No. 5	19.8			17.5	43	Assist.	side. She had previously undergone two operations,							
Quassia, U. S. P.	2.91	45.5		3.1	40		she said, presumably section and avulsion of the							
" Repere							nerve, with the usual result, viz: a return of the							
" No. 1							agonizing pains in the course of about two months.							
" No. 2							When Dr. Andrews first conceived the idea of such an							
" No. 3	2.75						operation, he had satisfied himself that these obstinate							
" No. 4							trigeminal neuralgias usually have their origin in							
Red Clover		45.5		18	40	Bickford.	defective teeth which give rise to a neuritis involving							
" Repere				20	38.4		first the inferior dental nerve and gradually progres-							
" No. 1				12.4	46.6		sing until the entire inferior maxillary branch of the							
" No. 2				14.3	48.6		fifth nerve is involved, that it ascends as far as the							
" No. 3				12	30.5	Assistant.	semilunar ganglion and stops there, not being trans-							
" No. 4				15.3	43		mitted beyond to the brain because of the difference							
" No. 5				22.8	41		in structure between the proximal and distal portions							
Rhatany		36.4		28	16	49	of the fifth nerve. His logical conclusion was that							
" Repere				27.3	14	43	if the removal of the ganglion could be effected, the							
" No. 1				22	10	37	intolerable suffering of the patient would be relieved.							
" No. 2				11.8	9	24								
" No. 3				15.6	49									
" No. 4				10.1	18	50								
" No. 5	With Glyc. 44.15			42.6	35									
Rhubarb, U. S. P.		68.2		41.7	73									
" Repere				38.6	73									
" No. 1				37	66									
" No. 2				37.5	42									
" No. 3				35.7	58									
" No. 4				36	11.2	47								
" No. 5	35.9			34.8	65	Assist.								
" No. 6	40.2			35.5	67									
Sarsaparilla		27		26.2	25	Day.								
" Repere				22.9	30									
" No. 1				25.3	31									
" No. 2				11.7	18									
" No. 3				19.7	40									
" No. 4				8	38									
" No. 5				20	25	Assist.								
" No. 6				26	22									
Scullcap, U. S. P.	20.6	30.3		15.9	25	French.								
" Repere				12.7	29									
" No. 1				17.6	45									
" No. 2				24.6	43									
" No. 3	23.2			19.2	5	41								
" No. 4				21.7	5	42								
Senega, U. S. P.		60.6		42.5	61	Stearns.								
" Repere				41.7	68									
" No. 1				23.2										
" No. 2				20.6										
" No. 3				33	62									
" No. 4	35.3			32.4	59	Assist.								

After a great deal of experimentation upon the cadaver, six different methods of procedure were devised for the accomplishment of the end in view, one of which Dr. Andrews now regards as the best and will be herein briefly described as the writer witnessed it last Saturday.

The field of operations was rendered as aseptic as possible, the right side of the scalp being shaved and the utmost pains being taken to guard against infection. Beginning near the external angular process a curved incision was made extending horizontally above the zygomatic arch, curving down in front of the ear and terminating near the angle of the jaw care being taken to avoid the pes anserinus. The flap thus made was turned down and stitched to the ala of the nose; the zygomatic arch was sawed through at each extremity and reflected down carrying with it the attached masseter muscle; the coronoid process of the lower jaw was then sawed off and turned up on to the temple, carrying with it the attachment of the temporal muscle, and was stitched to the scalp. Now some fat and connective tissue was exposed containing in it the internal maxillary artery, which was tied. Persistent oozing hæmorrhage had compromised each step of the operation and was particularly troublesome at this stage; the blood would well up into the wound almost as fast as an assistant could sponge it away, and owing to this masking of the parts involved, the operator had to literally feel his way in the dark. Search was now made for the inferior dental nerve which should serve as a guide to the foramen ovale, but it was not found, owing no doubt to the fact that it had been entirely torn away at one of the former operations. Therefore the finger of the operator felt for the posterior sharp edge of the external pterygoid plate of the sphenoid bone and passed it up to its base, near which the foramen is situated, and through which a probe was passed, the ganglion being transfixed thereby. Just external to the foramen ovale is a triangular free space on the under surface of the base of the skull and here a specially devised trephine with a long shank and a long center pin, was applied and the button of bone removed. The narrow isthmus of bone intervening between the trephine hole and the foramen ovale was bitten away with a pair of rongeur forceps and through the large opening thus made a surgical spoon was passed and the ganglion scraped away.

In closing up the wound Dr. Andrews advocates wiring together the bones sawed through, but in this particular case it became necessary to dispense with this procedure, owing to the manifestation by the patient of symptoms of collapse—due chiefly to the hæmorrhage, partly also to shock—from which however she rallied nicely after being put to bed, receiving hypodermic injections of digitalis and strychnine and the application of heat.

Time required for the operation was about two hours. To the bystander it seemed a formidable one—as it was a tedious one to the operator. But it must be remembered that the patients suffering with this trouble will invite almost any conditions whatever that will offer them escape and always say that if the operation wont bring them relief, they prefer not to awake from the anæsthetic.

As previously stated, this is the fourth time that Dr. Andrews has performed this operation. The first two, over a year ago, were followed by excellent

results, *i. e.*, complete relief up to the present date; the third died of shock from the operation: and it is said, to have been once successfully performed by Dr. Edward Kerr of Chattanooga, a time or two in Philadelphia, once unsuccessfully by Victor Horsley, an English Surgeon, and something like seven times by Dr. Rose, of King's College Hospital London, without a death. It is rather a remarkable coincidence that Drs. Andrews and Rose, one in England and one in America, entirely unknown to each other should have arrived at the same conclusions as to the advisability of removing the semilunar ganglion for the relief of facial neuralgia, and should have acted upon these conclusions at almost exactly the same time. These gentlemen since first hearing of the doings of each other, have been carrying on a personal correspondence exchanging views and plans and experiences relative to the fifth nerve. It would seem that to Dr. Andrews belongs the credit of first perfecting the operation and performing it on the cadaver, but, that Dr. Rose first undertook it upon the living subject.

Carl Stutsman, Chicago Med. Coll., Jan. 9, '93.

KNIFE CURETTE. ESPECIALLY ADAPTED FOR OPERATIONS ON THE BONES AND CARTILAGES.

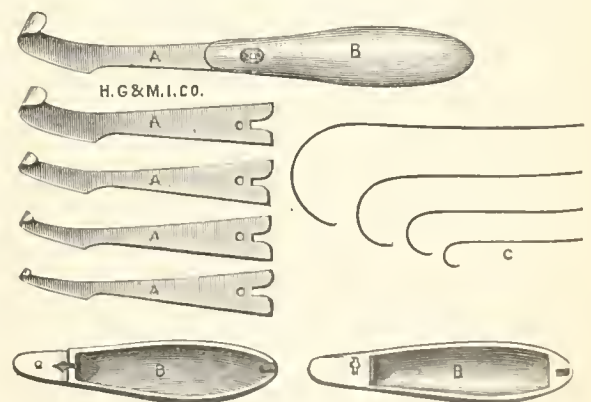
BY A. H. MEISENBACH, M.D.,

PROF. SURGERY IN THE MARION-SIMS COLLEGE OF MEDICINE, ST. LOUIS, MO.

This instrument is fashioned somewhat after the farrier's knife.

It consists of a blade (*a*) placed in a separable handle (*b*) as shown in the upper figure of the cut.

The cutting part of the blade is placed at an obtuse angle to the shaft: This gives a greater degree of leverage. The end of the blade is bent upon itself so as to form a loop or part of a circle. By means of this construction, the instrument has a round as well as a linear cutting edge.



The handle is made of metal in two separable parts, with a simple but effective lock and catch, as is seen in the lower figure of the cut. There are four blades of various sizes.

The figures are of one third actual size, with the exception of outline figures, (*c*) of the loops of cutting blade, which are actual size.

The various blades may also be attached to solid metal handles if so desired, and bulk is no objection.

With the separable handle the instruments can be more compactly placed in a small neat case; which

is especially desirable where different sizes of the instrument may be wanted at hand; for hospital work the solid handles, possibly may be of more satisfaction. The construction of the instrument is such that it is easily kept aseptic.

To the practical surgeon the many uses to which this instrument can be put will readily suggest itself.

In operations on the long bones as in osteomyelitis, superficial necrosis etc.; on the joint surfaces in the removal of the tubercular masses and foci operations in the petro-mastoid region, and many other instances too numerous to mention. In many cases it may take the place of the chisel, if properly constructed and of right temper. The form of its construction makes it a peculiarly powerful instrument with which rapid and effective work can be done, and its advantages over the ordinary forms of curette especially in bone work can easily be appreciated. I believe this instrument will be a valuable addition to the armamentarium chirurgicum of the general surgeon.¹

DOMESTIC CORRESPONDENCE.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

I am not willing to allow the statements in the editorial article on "Removal of the Ovaries as a Therapeutic Measure in Public Institutions for the Insane" in THE JOURNAL for February 4, to pass without question. I presume the statements are made on the authority of the distinguished chairman of the Lunacy Committee, of the Pennsylvania Board of Public Charities. Now, while I cheerfully concede Dr. Morton's distinction as a surgeon and teacher and acknowledge my obligations to his many valuable contributions to surgical literature, I cannot allow his sweeping assertions upon this question to pass without a mild protest.

Several years ago my attention was attracted by the statement frequently made in medical societies to the effect that many abdominal sections with removal of the uterine appendages had been done in American Insane Hospitals with a view of the curative effect of such operations upon various psychoses and neuroses. The assertion was perhaps still more frequently made that these operations had not only proven of no avail but also that insanity not rarely followed removal of the uterine appendages for other diseases. As I had no personal knowledge of any such cases, and could find no trustworthy accounts based upon facts, I determined to make a "collective investigation" of the subject and with this in view addressed a letter to every medical officer in charge of a public or private institution for the insane in the United States and British America. The officers so addressed responded courteously and I received detailed replies to my questions from 121 institutions. The results of an examination of these answers were reported to the American Medico-Psychological Association at its meeting in Washington last May. I found that only 39 such operations had been performed in the last ten years upon patients at the time in the care of these institutions. To these I could add, at that time 14 operations performed by myself in this hospital. Of these 53 cases operated upon seven have been mentally cured and discharged from the hospitals.

Twenty-six cases of insanity following operations upon the sexual organs were reported to me from these 121 institutions; but of these eight had recovered and been dis-

charged showing that the mental aberration following the operation had been only temporary; two were in an improved condition, four had died and twelve remained under treatment, showing indeed a very small proportion of persons insane enough to demand hospital or asylum restraint.

I am compelled therefore to disagree with the sweeping statement that these "experimental mutilations" (?) were either frequent or that their "ultimate success" is doubtful. More decidedly still do I disagree with the assertion that "many insane, epileptic and hystero-epileptic women, who have been thus mutilated (?) have subsequently found their way into hospitals for the insane, and are heard of no more." If the hospital and asylum superintendents have made true reports to me, and I am sure they have, then the "many" women who have become insane after operations on the sexual organs do not exceed twenty-six in number. This is, I am sure a very small percentage of the total number of abdominal sections done in this country in the past ten years. I am now studying the question of the special causation of the post-operative insanity in these cases, and believe I shall be able soon to give a rational explanation for the same.

I venture to go a little more in detail into some of the results obtained in my own practice with removal of the appendages in insane women. In one of my cases a hystero-epileptic mulatto woman, the patient had been an inmate of the hospital over seven years. Her convulsive attacks followed by violent maniacal outbreaks appeared to be closely connected with the menstrual periods. On these occasions she was wild and destructive; breaking, tearing, and fighting patients, attendants and physicians. She showed no tendency to improvement—rather the reverse. She was comparatively lucid in the intervals, anxious to get well, and asked to have the operation performed. She was discharged five months after the operation, apparently entirely restored and has since been earning her living as a domestic servant. She has had no recurrence of the convulsive or maniacal attacks.

Two cases were puerperal insanity; one in the second, the other in the third attack. Both of these women are now at home attending to household duties. In both there were lesions of the pelvic organs, sufficient in my opinion to justify the operation.

Another case of profound melancholia with onomatomania is sufficiently recovered to be at home assisting her mother in the household duties. In a letter written February 2, nearly four months after her discharge she reports herself as gaining mental strength and being almost free from the annoyance of the "inward voice" that formerly worried her so much.

Another case of melancholia with suicidal tendencies has recovered after repair of a badly lacerated cervix and has been discharged.

None of the cases upon whom I have operated have been made worse. I believe I shall soon be able to discharge others of those operated upon, as some show progressive improvement.

I deny then the assertion that the success of these operations in proper cases is "doubtful," "the distinguished chairman of the Lunacy Committee" of the Pennsylvania Board of Public Charities notwithstanding.

I do not know enough of jurisprudence to say whether the contention, of "the legal member of the Lunacy Committee" that neither an insane woman, nor her relatives can give legal consent to the performance of an operation upon her, is good law or not. I do not hesitate to say, and in this I am sure I will be supported by nine-tenths of American men and women, that it isn't common sense. If, however, it is true that neither the woman nor her guardians can give

¹ Holekamp, Grady & Moore, makers. St Louis, Mo.

consent, then the responsibility rests entirely with the physician. No lawyer, no secretary or chairman of a Lunacy Committee, and no Board of Public Charities can relieve the physician of this responsibility, or prevent him from acting in accordance with the dictates of his conscience in this matter.

And so "the Committee on Lunacy of the Board of Public Charities" of the great State of Pennsylvania "has full authority under existing statutes to prohibit the performance of operations" upon and "to regulate the treatment of the insane." The medical officers of the Pennsylvania Hospitals for the insane must "take their orders" from the committee. These men and women, able, cultured, sympathetic, scientific laborers in the field of psychiatry must perforce, should the Committee see fit to demand it, that their patients committed to their charge not as their own professional experience demands, but as the Lunacy Committee directs! Lovely prospect for the asylum physician! If he or she thinks a patient requires a dose of morphine, he or she may find that the Lunacy Committee disapproves of this medication, because "it is the duty of this committee to regulate the treatment of the insane." That's what the "legal member" says. "It is brutal and inhuman, and not excusable on any reasonable ground" to endeavor to restore an insane woman's reason—unless it is done in accordance with the views of the Lunacy Committee. The gynecologists, those terrible fellows, want to invade the sanctity of the insane hospitals and rip open all the insane women in the State of Pennsylvania in order get an "added forward movement up the ladder of fame." At least, that's what the "legal member" says, and doubtless he knows. Of course, the gynecologists and those medical officers of hospitals who believe with them that mental derangement may be due to extra-cranial disease, cannot possibly be actuated by humane sentiments, or the desire to do more for the unfortunates placed in their care than has heretofore been done. They only want an "added forward movement up the ladder of fame!"

To say that the operation of oöphorectomy, so-called is brutal and inhuman, is to accuse the operator of brutality and inhumanity. In making the statement and inference the "legal member" of the Lunacy Committee utters a vile slander. His medical associates on that committee in giving publication to the statement and inference have endorsed the slander. Of this grave misdemeanor, perpetrated upon honorable men and women, I charge them before the bar of professional opinion. Are they willing to stand trial before that court?

GEORGE H. RONE.

Maryland Hospital for Insane.

Catonsville, Md., February 6, 1893.

Revision of the Code of Ethics.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Dear Sir:—In his letter to THE JOURNAL of Feb. 11, 1893 the writer examined only a few sentences, after reading the whole of the *News* editorial of Jan. 28. He will now give some attention to the remainder and analyze such sentence requiring special consideration. But before beginning this critical examination he will make a few general remarks.

1. There are several prominent features in both of the *News* editorials that require general revision; among them are assertions, opinions and assumptions. The first two can be of no value in argument unless based upon facts which are supported by incontrovertible proofs. The third, assumptions, are not generally regarded as logical deductions. The demands of the dissenters are in keeping with the features to which reference is made above, for they assert, opine and assume that the Code is objectionable

without offering any arguments as proofs to establish their claims. They should not forget that the burden of proof rests upon the aggressive side; the office of the defense being to controvert the testimony of the aggressors and to challenge them to furnish substantial facts in proof of their position. The author of the editorials says so much of what he regards as illogical that he may yet take advantage of the art of reasoning and perhaps construct a series of syllogisms to strengthen the position he occupies respecting the revision of the Code and the attitude of the dissenters.

2. The author of the editorials is apparently (inconsistently, however) in dread of that "formidable minority." How can he regard this minority as so ominous when, according to his own statement, it exists "principally" in one State? What is that unit to all the other States? What is that minority to the "general sense of the profession?" If that minority exists "principally" in one State, how insignificantly small it must be in the other States, where there seems to be general harmony! In an assembly of five hundred persons entitled to vote, a minority of two hundred and forty may be considered formidable and excite the apprehension of the small majority, which might in future become a "formidable minority." In many medical associations a majority of one often decides important questions, whilst other questions decides a two-thirds majority, particularly when it is proposed to alter their laws. It does not seem to have occurred to the author of the editorials that "the general sense of the profession" constitutes a "formidable" majority.

3. The writer suggested that it would be gracious for the minority to abide by the "general sense of the profession" and allow the Code to stand as it is. In reply, the author of the editorials said: "But the minority emphatically refuses to act in this gracious manner," and he has no reproof to make them for being ungracious! If the dissenters refuse to be gracious, kind, merciful, condescending and conciliating, but will assume a defiant, dictatorial, and malevolent spirit, how can they expect to be received in the fold of a benevolent confraternity? Repentance, with an avowal to endeavor to be just in future, is apparently their only hope. The author of the editorials seems to be at his wits' end because this "minority emphatically refuses" to be gracious, to be just, and to abide by the law. It is not improbable that the dissenters will be let alone severely, that they will be left in the moral and professional "background," unless they repent and, if they do, then the fatted calf will be killed and the prodigals shall feast and all shall rejoice. The American Association will thrive in spite of dissensions and can wait longer than contentious mortal members, then there will be no more threatening "formidable" minorities to disturb peace and harmony, for the schools will teach the history and philosophy of medicine.

4. The author of the editorials says: "It is not logical to assume that the sentiment which so divided the profession is confined to the State of New York." Is it logical to assume that the profession is divided in sentiment in other States than New York, since, as says the editorial of Jan. 28, "In the State of New York only has there been an expression of opinion on the Code?" Facts, well authenticated, and not bare opinions, or assumptions, are of value in argument. The defenders of the Code do not indulge in assumptions; they rely upon the logic of truth and justice.

5. The author makes an assertion to the effect that the old societies of New York are not represented in the American Medical Association; seemingly without being cognizant of the rules of the American Association. In accordance with these rules, when in one State, there are two State organizations, only one of these societies is entitled to representation. There are now two State organizations in New

York, only one of which adopts the laws of the American Association, and is thereby entitled to representation. This State Association from its large membership, is entitled to send seventy-five delegates yearly, and all of its members may become permanent members of the American Association. Before its defection, the old State Society could not send more than fifty delegates. The number of the author's elect seems to be diminishing, for he has retrenched the "able," leaving the "eminent," and, to keep these in countenance, he has substituted "valuable" for "honest." However, without assumption, it may be declared that eminent and valuable workers are all honest, just as all men are honest until convicted of dishonesty, therefore the adjective was superfluous and its suppression was wise.

6. Now this author indulges in severe reprobation of the advocates of the American Code (although he endorses its spirit), and reprehends what he styles "a blind adhesion to the Code as it stands," and further says that, "in view of the attitude of the minority, (it) is short of fanaticism, and is hardly less reprehensible than the extreme action of the advocates of the new code." After this and other terms of reproach, the advocates of the American Code may well exclaim, "Save us from a friend who uses such epithets against us, and who would have us surrender truth, principle, justice and honor, to his great bugbear of a 'formidable minority!'" The "eminent and valuable" workers also may well exclaim, "Save us from the over-zealous friend whose advocacy is so hurtful to our cause! We have made a fatal mistake, but we are too proud to acknowledge our fault! We have rushed into evil ways, it is true; but, although conscience whispers, Ye are sinners, we shall not retrace our steps! Such are likely to be the reflections of the leaders. It is not improbable that the rank and file will say to these leaders: Ye have led us astray, but the light of truth is dawning upon us; we wish to be just; we repent, and must leave yours for the right path; we shall make known our fealty to the National organization; and many have already done so. The majority of the dissenters may tell the author that he was not empowered to say "they emphatically refuse" to be gracious, that he was not asked to plead for them, that they would not have selected him at counsel, still less as barrister, and that even as a friend of the court he would be injurious to the plaintiffs and of no use to the defendants. The author then proceeds to instruct the revision committee how they should frame a "newer code" that may or may not—most likely not—be acceptable to the dissenters who have so long endeavored to disprize an Association which, nevertheless, they wish to join, because from the point of view of this author, the "formidable minority" must rule the majority!

7. The author of the *News* editorials reproachfully says: "To assume that an overwhelming majority of the profession is opposed to any change in the Code is illogical and not in accordance with facts." The defenders of the Code have never assumed to be profound in logic or anything else; they have depended upon the simple logic of truth and justice. If the statement about the overwhelming majority be an assumption, it is the author's own assumption, for he has distinctly said that the "general sense of the profession" is favorable to the Code as it stands. Whether "Iowa's" statement, that nine-tenths of the profession favor the Code as it stands, is an assumption, the writer leaves to the editorial's author to prove. There is, however, in the quoted sentence one point which is clear; the author asserts, boldly and inconsistently, that a statement (which he assumes to be correct) is "not in accordance with facts," but he does not attempt to disprove this statement. What facts has he to show that the majority of the profession in the United States, or the smallest minority

outside of New York State, does oppose the Code and is in favor of the adoption of a "newer code?" and what evidence, as a seer, has he that in the event of the adoption of a "newer code," this may not lead to the "newest code," and so on without end? The assertion that a statement is not in accordance with facts is insufficient in any discussion. The aggressor must show what are the real facts, and prove his point, for the whole burden of proof rests upon him, whilst the defender controverts the assertions of this aggressor as well as he can.

8. If what follows be a specimen of the sort of evidence the author is to adduce in his disputations, it may be of interest to know what he generally regards as evidence. He says, in speaking of the New York State canvass: "Does not this showing indicate so considerable a dissatisfaction with the present Code as to call for serious consideration on the part of the central medical organization of the United States? The appointment of a committee of revision of the Code is conclusive evidence that such is the opinion of the American Medical Association." This "showing" does not appear to indicate anything more than the results of the New York State canvass, which are that out of 5,002 physicians, to whom were sent letters of inquiry respecting their views on the Code question, 2,547 favored the National code, 1,040 were for the "new code," 239 were for no code, 34 sent such indefinite replies that they could not be classified, and 1,142 failed to reply. So the real vote was 3,826, and of this number 2,547, or about two to one, were in favor of the National code, which may justly be considered as a "formidable" majority. To regard the appointment of the revision committee as "conclusive evidence" of anything like an expression of opinion, on the merits of the Code, by the Association, plainly indicates that the author needs to explain what his particular views of evidence may be. If he should happen to examine at leisure the subject of evidence he would be likely to withdraw his assertion concerning the "conclusive evidence" in question, and even to have misgivings of evidence furnished by any of the seven deluders; but fortunately he has added to his catalogue an eighth sense, *i.e.*, the "general sense of the profession," which he does not seem to consider as deluding. To emerge from the labyrinthine mazes of the controversy which he has allowed his too zealous self to enter, he may have followed the example of a well-known disputant and provided himself with "a genteel assortment of the best figures of rhetoric," so as to be able to show that a proposition should not be understood the way it is stated, but quite contrariwise; as, for instance, when he writes "conclusive" it should be understood to mean inconclusive. Then he may triumphantly exclaim that the figures of speech are the pillars of disputation! He should have known that the appointment of a committee is often only a concession to a few irritable, contentious members, and is not necessarily an expression of the assembly's opinion on the questions that may be examined by the committee, for the assembly does not take action on the subject until after the committee's report. The disaffected make persistent demands for the appointment of a committee, and the assembly, to be rid of tedious discussion and to prevent the waste of precious time, appoints the committee, but note the verbiage of the resolution: "*Resolved*, That the President appoint a committee of five to whom the Code of Ethics of this Association shall be referred for such changes or amendments as they may deem it wise to recommend, if they should decide that any change is required." The writer has failed to detect anything in this verbiage which may be construed as "conclusive evidence" that the Association was of opinion that the Code requires modification. The last clause of the resolution says distinctly, "if they (the committee) should decide

that any change is required." This surely does not indicate that the Association was of opinion that the Code needs to be modified, or that the hyperbolically "formidable minority" had given "conclusive evidence" of the necessity of such modification. How can all this be so regarded by the author after saying that the "general sense of the profession" is favorable to the Code as it stands? It is well known that the revision resolution was inspired by those who long since disfranchised themselves from the Association, and now insist upon being readmitted on their own terms. Is there any evidence that he who wrote and presented the resolution for the appointment of the revision committee was not, unconsciously perhaps, in the hands of the enemies of the Association?

9. Here is more of the inconsistency of the author who, having before said, substantially, that the public has nothing to do with the Code, now speaks of the provision "which has subjected the profession to criticism by the public on the grounds of intolerance and inhumanity." He reiterates that "the Code is for the profession and not for the public," and further says: "The public does not care for or read the Code; and as a rule, the few who have any knowledge of its provisions ignorantly regard it as intolerant, and in a certain sense inhuman." Whence his information that the public does not care for or read the Code, and in what particular sense is it inhuman? These are among the many examples of gratuitous assumptions by the author of the editorials. That the framers of the Code intended it for the public as well as the profession, is evidenced by the inserted article relating to the "obligations of the public to physicians," and these framers of the Code were far-seeing men whose ability, wisdom, scholarship, and motives have never been questioned. The author offers no testimony to show that "the public does not care for or read the Code." Here is another glaring inconsistency. Yet "the few who have any knowledge of its provisions ignorantly regard it as intolerant and in a certain sense inhuman." How do "the few" obtain this knowledge? A portion of the quoted sentence looks like calling a few members of the public bad names. May not the rest of the public, with propriety, resent the epithet ignorant? The American people has a fair stock of good sense, and is by no means grossly ignorant. The public may have been misinformed and very likely was intentionally misinformed by irregulars who are ever anxious to decoy the regular profession, and take special advantage of the existing dissensions to carry out their purposes. According to the author, the general public has not read the Code; this is not doubted, but may not this public have received, from designing persons, the impression that the Code teaches intolerance and inhumanity? Therefore would it not be proper to publish to the nation the whole Code together with the well known admirable commentaries appended thereto, and to await the decision of those who shall have read it with care, and then to ascertain how many consider it "intolerant and inhuman"? The public is dependent upon physicians for the cure of disease and for special and general sanitation, and physicians are dependent upon the public for their livelihood. This interdependence entitles physicians to know something of the laws governing the public, and entitles the public to know something of the laws governing physicians in their relations with each other and with this public. The Code was framed for the instruction and protection of the public as well as of physicians. It is astounding to hear any thinking being say that the public has nothing to do with the Code. Let the public have better opportunities to be acquainted with the provisions of the Code, and make no assertion that this public cares nothing for them unless a general opinion is expressed to that effect after careful perusal. Publish widely, in the

newspapers, the Code and commentaries, and let the public judge for itself.

10. The author of the editorials here makes a most strange disclaimer when he utters the following: "We do not discuss the question of revision of the Code in anything approaching a controversial spirit." The writer is forced to take issue with him also on this topic. The author disclaims a controversial spirit, and yet has turned against much of the matter and manner of the Code, though his opposition is not made by reasoning, by offering arguments to establish his position, and his statements are not generally in conformity with the customs of controversy. The editorial of January 28, manifests a strong spirit of controversy, while in the letter of controversy is not in accord with custom, as already shown in several of the paragraphs which here give the results of its examination. The two editorials are therefore placed in evidence that their author is imbued with the spirit of controversy, but they give little evidence of the letter of controversy. The editorial in the *Medical News* of September 17, 1892, was the opening of the controversy, for at page 332 he says: "We throw out as tentative suggestions what seem to us the most important points, and invite full and free discussion of the various suggestions, *seriatim*." An author who invites full and free discussion need not expect all criticisms to be favorable to his productions, and should not be seriously grieved if some of the critics point out flaws in his statements and show why they cannot agree with his views. The writer challenged him to offer arguments and proofs in place of baseless assertions, bare opinions, and gratuitous assumptions. If he and those he supports are in the right, then the framers of the Code and the American Association have been wrong for forty-five years. If he cannot coolly and dispassionately discuss this question, or if he finds that he is in error, let him make a frank, open, and manly avowal that he is wrong, and he will probably rise to a great height in the estimation of the "eminent and valuable" workers as well as of the humble defenders of the American code. To acknowledge a wrong is always noble and never humiliating.

11. If, as says the author of the editorials, "it is not essential that a perusal of the Code should give pleasure as well as instruction," it may not be improper to ask if it is essential that such perusal should give neither pleasure nor instruction? If the Code failed to give pleasure coupled with instruction, it would seldom be read and would be of very little use. But there is no accounting for literary or any other taste. It seems to the writer that an essay composed in good manner and pregnant with useful matter should give pleasurable instruction to the reader, whilst a slovenly and obscurely written document which may contain some good ideas thus badly expressed, and which requires laborious perusal, would be likely to be cast aside, half read, by the majority, even of those who may be anxious to learn. It is scarcely fair to assume that all medical readers lack the refined discernment which seizes the beauties of a poem or of good prose, and distinguishes the perfect from the mediocre, the noble from the sublime, and finds for each its rightful place.

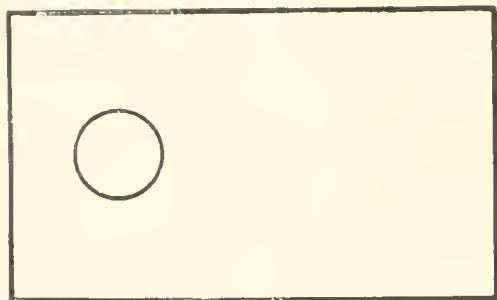
12. The writer once more declares that in this controversy he is actuated by the sole motive of defending what he believes to be a just cause. He will therefore spare no pains in endeavoring to find flaws in the statements of the opposition, he will use all legitimate means to defeat the opposition, but in a courteous manner and spirit, and will not employ unfair methods. If, however, in the heat of argument, he should make any utterance that may, in the least degree, be considered contrary to the customs of literary or scientific controversy, or if he should inadvertently make a misquotation, he humbly apologises in advance, and if ever

his attention is called to any utterance or misquotation he will cheerfully offer a special apology. The writer regrets that his occupations have not permitted a more complete and concise criticism of the two editorials. He has examined only the main features of these remarkable documents, and has left many things unsaid, otherwise too much of *THE JOURNAL'S* space would have been taken.

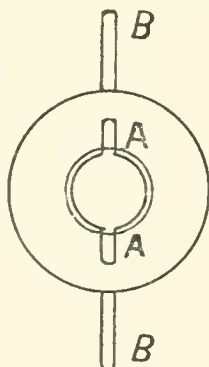
A CONSERVATIVE MEMBER.

To the Editor of the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*:

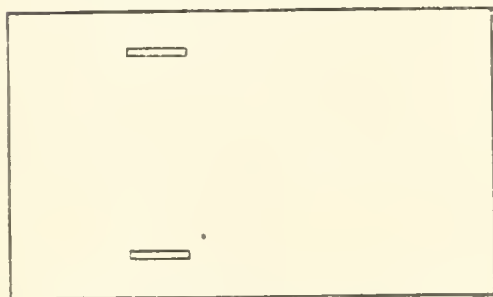
I wish to suggest a method of dressing the cord in mid-wifery cases, which I think, will be an improvement over the ordinary way, as we know it. Thus, the cord is cleansed, and tied in the usual place, then a thick pad of aseptic lint with a hole in it is put on over it, then a small metallic plate of lead or zinc (par ex.) with a hole in it is put on



FIRST PAD



METALLIC PLATE



LAST PAD

close to the pad. The cord is secured to this plate by a rubber band or ligature around the legs (*aa*). If the rubber band is used, hitch a loop of it over one leg, tighten it around the cord and secure it to the other leg (*a*). Then, bend the legs down to the plate for fixing it. Now, carry the cord down in the long axis of the dressing and cover it

well with the other pad, which is perforated by, and held by bending down the legs (*bb*) on the lead plate, complete with the usual binder around the body. This gives a clean and fixed dressing, the metallic plate acting as a support in passive hernia. Truax Greene & Co. informs me that they can be made at a reasonable cost.

Evanston, Feb. 6, 1893.

JOHN H. BLACKBURN, M.D.

SOCIETY PROCEEDINGS.

American Electro-Therapeutic Association.

Second Annual Meeting, held in New York, October 4, 5 and 6, 1892.

WILLIAM J. MORTON, M.D., PREST.

FIRST DAY OCTOBER 4—AFTERNOON SESSION.

(Continued from page 160.)

ELECTRIC CATAPHORESIS; ITS USES IN GENERAL MEDICINE.

By William J. Morton, M.D., of New York City. Professor of Diseases of the Mind and Nervous System and Electro-therapeutics, New York Post-Graduate Medical School and Hospital.

Excluding from this section of our discussion reference to what would naturally fall to other participants and within the lines of introduction, physics, surgery, gynecology and nervous diseases, it would hardly seem at first glance as if much remained to be said in the section allotted to myself. And there may indeed, be danger of overlapping remarks. Yet, even in that case, such is the importance of cataphoresis in electro-therapeutics, and its interesting nature. I am sure the transgressor may hope for lenient judgment on the part of his hearers.

The part of this subject, most important from a medical point of view to elucidate, is the physics of cataphoresis, its nature, the laws which govern it—whether it is a simple mechanical transportation, whether it is incidental to or an actual part of electrolysis, its relations to chemical osmosis, and whether finally, it is not in reality a compound phenomenon consisting both of mechanical transport, and electrolysis, with, under certain conditions, the addition of chemical osmosis.

The existing confusion in this the most fundamental branch of our subject is apparent when we recall that according to Jurgenson fine solid particles suspended in the fluid traversed by the current flow in a direction opposite to its conventional direction while Quincke found that the particles flow in both directions; again methyl blue travels from positive to negative pole, while eosine travels from negative to positive, and an alcoholic solution of bromide of barium also travels from the negative to the positive pole. To the distinguished physicists who are with us to-day we look for light.

It has seemed to me that we may seek for an explanation of cataphoresis in the modern view of electricity which assumes that the electric energy resides in the medium outside of the conductor expending this energy upon conductor or non-conductor alike, the difference between the two being that the conductor dissipates the energy and thus becomes the seat of what is termed a current, while the nonconductor, though subjected to the same influence fails to dissipate it. In the former case the vibrating medium vibrates along the conductor by a succession of lapses or slips while in the latter case it vibrates against the non-conductor which becomes simply charged or electric. The former constitutes a current, the latter a charged body.

At this point, in cataphoresis, comes in the question of the electric resistance of the fluid conductor. If the fluid has little resistance, as in acidulated water, there is little

or no movement, but if the resistance of the fluid is increased, the rate of flow is increased and for a given resistance its flow will be proportional to the current strength. On the other hand, the resistance may be so increased that there is no cataphoresis, as in the case of oils, but there is also little or no current. May we not assume, to explain the transfer of fluids by cataphoresis that the action is mechanical, that the partially conducting molecules which constitute the electric resistance are borne along bodily, to use a rough comparison, like chaff before the wind—become in short, since the mass is fluid, a resistance which may be moved along, while the conducting molecules dissipate the energy they receive to form the current. We might designate this a theory of moveable resistance.

In support of a purely mechanical theory I would cite an experiment from Ganot's physics which is very easily repeated. A glass tube, say 1-16 of an inch in its internal diameter is filled with acidulated water and a globule of mercury nearly equalling the diameter is introduced. The glass tube is corked at each end, a wire is led in through each cork and the apparatus included in a galvanic circuit of from five to twenty cells. Upon allowing the current to flow the globule will promptly and invariably move from the positive to the negative pole even when the tube is so inclined that the mercury must be raised against gravity.

Again, in support of the same view, by making a paste of liquid glass and finely powdered graphite and smearing it over a positive carbon electrode I have caused, with 15 milliampères of current, the graphite to penetrate the hair follicles so deeply that they remain imbedded there for weeks in spite of efforts to remove them.¹

In this case since the graphite could not have been acted upon electrolytically it must have been forced into the follicles by the force of its flow.

Certainly, this question continuously arises, why do fluids of little resistance not suffer movement? The most likely answer would seem to me that where there is friction in a fluid there is movement, and where there is no friction there is no movement.

In the midst of so much uncertainty from a physical point of view fixed procedures of medical practice cannot in all instances be established.

But individual facts well sustained by experiment stand out from the confusion and lead to corresponding certainties in practical medicine.

It is certain,

a. That in a fluid and semi-fluid conductor like the human tissues there is a movement of fluid from the positive to the negative pole.

b. That extraneous fluids maintained in contact with the skin or mucous membrane and thus constituting continuity with the body fluids are transported from the positive toward the negative pole and that in this manner medicinal substances in solution may be caused to penetrate the skin and enter the tissues and the circulation.

c. And it is theoretically possible and demonstrated with tolerable certainty that medicinal substances in solution in the tissues may be removed from these tissues as well as introduced into them by the direction flow of the current from positive to negative pole.

Thus electric cataphoresis to-day presents itself to general medicine as well as to special, under two divisions, each one distinct from the other, viz.:

1. Cataphoresis or simple fluid transportation in the human body.

2. Cataphoric medication (and demedication).

It is difficult to say at present which of these two will in the end render most service in the treatment of disease.

1. Cataphoresis (irrespective of medication).

This has long been a recognized action of the continuous current. Named in the first instance by DuBois-Reymond, Remak later on included it in the *ensemble* of actions which he termed katalytic. But it is only in late years that it has received any worthy attention—an attention mainly the result of laboratory experiments upon the lower animals and upon dead animal tissue.

Among such experiments, almost unique and especially worthy of mention are those of G. N. Stewart, physiologist, in Owens College Physiological Laboratory. In all animal liquids when separated by a porous septum there was an immense transference of water from the positive to the negative compartment, also a distinct movement of pigments and proteids.

"For example, in an hour and a half, with a current of only five milliampères mean strength, the volume of a 3.6 per cent. hæmoglobin solution had diminished 40 per cent. in the positive compartment" and increased to a corresponding degree in the negative. Again, "In a two hours electrolysis of bile with a current of 65 milliampères, no less than 92 per cent. of the water had disappeared from the anodic compartment, which originally contained 10 c.c. of the liquid."

When 70 grams of rabbit's muscle with no porous septum was electrolyzed for thirty minutes by a current of 350 milliampères, the water in the cathodic half was found to exceed that in the anodic half in the proportion of 48 to 31 and the salts in the proportion of 48 to 23. Both electrolysis and cataphoresis contributed to this result.

In a living rabbit Stewart passed a hollow metallic electrode into the vagina; when this electrode was a cathode fluid was forced through it, while none appeared when it was an anode. In this case it might be queried if the flow was not due to increased secretion due to the stimulating effect of the cathode, but there was little doubt that cataphoresis was the main factor in its production.

These experiments are not cited to show the possibility of cataphoresis, for of this there is no doubt, but to show the very large amount of the transference of fluid which may take place in tissue. The fluid transfer also includes the removal of the substances dissolved in it, mainly salts. The importance of these latter to the maintenance of healthy nutrition is well known. Normally varying from one to two per cent. in muscle, nerve and other tissues, a decided change in the percentage produces a marked effect upon their vitality and their nutrition. The experiments of G. Weiss² upon the legs of living frogs show that the excitability of the untreated leg was for a long time twelve times greater than that of the electrolyzed leg, and that there were produced profound microscopical alterations in the structure of the muscle. Porret, in the phenomenon named after him, had already noted the cataphoric microscopical change in the muscle.

The importance of this fluid-conveying power and its concomitant deprivation of tissue of salts, both by cataphoric removal and by electrolysis, is scarcely yet appreciated. Its applications to general medicine are obvious, while it may explain well-known results thus far established empirically.

The gynecologists, under the leadership of Apostoli, have used currents of great current strength at the point of small metallic electrodes, and have thus arrived at distinguishing expressions relating to the action at either pole.

The hæmostatic and drying effect of the positive electrode may well be due to the removal of fluids, while the "liquefying" and "hæmorrhagic" effect at the negative pole is equally due to cataphoresis. Granting the softening effect

¹ New York Medical Journal, April 25, 1891.

² Technique d'Electro-physiologie, Paris, 1892, p. 125.

of the negative pole upon urethral stricture, is it not largely due to a liquefaction by the flow of fluids to it?

In a minor way it has long been noted that the eschar at the negative pole was soft and liquid while that at the positive pole was dry and hard, also that the negative needle in surgical electrolysis is loose and free in the tissue, while the positive needle, even though of unoxidable material, was held firmly.

On a larger scale and in general, cataphoric accumulation of fluids at the negative pole is indicated in the resorption of tumors and of exudations. The application of the action to uterine fibroids and to inflammatory exudations is obvious. In the former case the great current density of the continuous current produces a contraction of the uterus and diminution of the vascular supply of the tumor with a loss of its salts. Its nutrition becomes impaired and a reduction in size is accomplished. In the latter the starvation of its salts alone is the most important element in causing absorption and dissipation. The cataphoric action of the current is also indicated in chronic rheumatic affections of joints and in thickening of synovial membranes about the sheaths of tendons.

In short, in determining upon what action of the current to appeal to to accomplish denutrition and absorption, cataphoresis comes saliently to the front.

2. Cataphoric medication and demedication.

The historical growth of the idea that medicine might be introduced through the skin is most interesting. This falls naturally under introductory remarks.

That medicinal substances do penetrate the skin is now beyond doubt. Personally, I have often ascertained the presence of iodide of potash in the urine after applying it to the positive electrode alone or to both electrodes, and have driven the particles in suspension, like finely pulverized graphite, into the hair follicles, where they have remained firmly imbedded for weeks. Cocaine anæsthesia by electricity is a well established procedure.

To what extent this method of introducing medicine to the human system may become of practical utility in general medicine becomes an important question.

There are obvious reasons why the method cannot compete with the introduction of the same medicine into the stomach. To introduce it by the skin a battery is required; the amounts introduced are comparatively small, though large enough with certain powerful drugs; and it is difficult to measure the dose introduced with accuracy.

On the other hand there are advantages theoretical and practical which may be named, as for instance, when the tissue upon which it is required to have the drug act is superficial and local. This is often the case in diseases of the skin, in ulcerations, lupus and cancer, in superficially situated neoplasms like a syphilitic gumma.

Again, granting a part in the phenomenon of cataphoresis to electrolysis, it may be that remedies acting in their nascent state ought to be of especial efficacy.

To avoid the action of the fluids of the stomach upon medicines is also sometimes to be desired.

Comparatively very little in the way of the introduction of medicines in general medicine by this method has been done.

The medicines have been introduced by two systems; by electrodes of about the usual size modified to maintain the dissolved medicine in contact with the skin, and through the agency of electric baths.

By Electrodes.—The list is long of those who have introduced medicines or attempted to do so by this means. It would include the names of Pivati, Verati, Bianchi, Brigoli, Palma, Winkler, and many others of that time. Of Priestley Mangin, Guardana, Sigaud de la Fond, de Haen, Becquerel,

Davy, Fabr -Palaprat, Hassenstein. Of Beer, Clemens, von Bruns, Munk, Adamkiewitz, Richardson, Wagner; of Erb, Larat, Bardet, and so on through a large bibliography to our own times.

To illustrate the present status of the subject in general medicine, and aside from experimental research, but few names can be or need be mentioned.

In April, 1889, Dr. F. Peterson's article on "Electric Cataphoresis as a Therapeutic Measure" awakened an entirely new interest in the subject on this side of the Atlantic.

In this same year, Mr. Newman Lawrence and Dr. A. Harris, both of London, separately and conjointly described the cataphoric method of medication, inventing if I am not mistaken the term "cataphoric medication" to describe it. Their paper was read before the Society of Arts.

In the same year also (November) Dr. Cagney, also of London, treated a variety of diseases by this method. Among other remedies he used Iodide of Potassium in cases of labyrinthine deafness, lead palsy, syphilitic gummata, etc. These English publications revived the interest in the subject on the other side of the water.

In later years some excellent and elaborate papers upon the same subject have been published in France though I cannot at this moment lay my hand upon the references. I recall at least the name of M. Danion in this connection.

At the International Congress held in Berlin, in August, 1890, a paper was read from Mr. Edison upon the employment of cataphoresis. After careful experimental work with solutions and porous septa the process was applied to two cases of gout.

The patient immersed his hands in jars of water. The one, the positive pole jar, containing a 5 per cent. solution of lithium chloride; the other, the negative jar, containing a solution of common salt. In the first case 5 ma. of current was used and lithium was detected in the urine.

A second case received 20 ma. On the whole the experiments were conclusive.

The writer published in April, 1891,³ an account of a new method of introducing medicines into local parts, like rheumatic joints and employed the lithium salts (carbonate chloride and bromide) placed in solution upon compounds suitably applied.

The method was termed anæmic cataphoresis, and on account of its practical relations should be mentioned here. As ordinarily introduced the drug quickly finds its way into the blood stream and its local effects are diminished or lost. In anæmic cataphoresis the blood stream is cut off by an Esmarch bandage or rubber rings and the drug acts directly continuously in *loco dolenti*.

Beginning at that time the treatment of rheumatism and gout by this method, the writer has continued it ever since with great advantage, especially in chronic cases. The solution of lithium salt is applied to large sponges bound upon each side of the joint, generally bloodless by an Esmarch bandage, and owing to the complex nature of cataphoric action the dissolved medicine is applied to both electrodes. The current strength bearable with electrodes four inches square was from 15 to 20 milliampères, duration of treatment 20 minutes.

In September, 1891, Dr. Imbert de la Touche, of Paris, read an extended paper upon the treatment of gout and rheumatism by cataphoric medication. The remedies in solution were applied by aid of a large sponge or absorbent cotton, and made to constitute a positive pole. Cases were carefully reported and the results most excellent.

(To be continued.)

³ Note on a new method of cataphoresis. N. Y. Jour. April 25, 1891.

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MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, FEBRUARY 18, 1893.

THE NECESSITY FOR TRAINED AND EDUCATED
HEALTH OFFICIALS.

There has probably been no time in the history of this country when trained, competent and efficient health-officers were needed so much as they are now. The average health-officer is appointed without any special training or qualification for the place; his tenure of office is so slight that very few feel warranted in qualifying themselves for such duties and in no other direction is there any special incentive to full preparation for the discharge of the responsibilities that devolve upon the holder of such office. Much has recently been said with regard to the manner in which cholera was managed in England during the last autumn, but nothing was said in regard to the special knowledge required of medical officers of health in that country, before they receive such appointments. No one is eligible to such appointment in Great Britain without special training and his qualification having been established by examination; his position is then assured and he is not subject to removal with change of administration. It ought to be axiomatic that no health-officer, no health-commissioners, no executive officer of a board of health, should anywhere be appointed, until after thorough examination, or training in a subordinate capacity, and until he had evinced special aptitude for and interest in that line of work. A great misfortune in this country is that whenever a change of administration is brought about, it is considered necessary to change officers of health and to appoint a new man without any reference to his special capability. Instances frequently occur, involving great responsi-

bility, where the appointee is wholly incompetent, and is dependent upon the subordinates in his office for information and advice; in short, is compelled to learn the duties incumbent upon him at the expense of the life and treasure of the public. Until a change is made in the mode of selection of these officers, and the tenure by which they hold their appointments is more stable, we cannot expect in this country efficient sanitary administration.

In all civilized countries, except the United States, there are some special qualifications required for this office, and just in proportion as they are exacted, in the same proportion is the community protected from preventable diseases; from unnecessary panics with the suffering incident thereto, and from the economic loss caused thereby. Unfortunately it is generally supposed that all medical men are sanitarians; this is not the case, as their education, training and work have not generally been in that direction. It is unfortunate that in the absence of epidemics or pestilence, too little attention is paid to the protection of the public health, and as a necessary consequence, to the selection of those whose duties require them to guard the public health. Laws should be passed in all the States defining the qualifications necessary for eligibility for appointment of health officers. This is in the direction of a civil service reform much needed.

Bills are now pending in a number of State Legislatures having for their purpose the enactment of efficient laws for the regulation of the practice of medicine by means of State examining boards. Wherever such boards have existed they have been of value not only to the State in affording protection to the people from charlatans and unqualified practitioners, but such boards have exercised a most valuable influence in elevating the educational standard of the medical profession.

We regret that in some instances, notably in the State of Illinois, bills have been introduced in the Legislature, which, if enacted into laws will practically annul or abrogate the efficiency of the present medical practice act.

The Chicago Medical Society and other similar organizations will do well to give this subject their practical attention.

PAPERS.—Those members of the American Medical Association who expect to read papers before the Sections should, as soon as possible, send the subject title to the Chairman or Secretary of the Section. See names and addresses on the title page of THE JOURNAL.

CRIPPLED CHILDREN.

A mass meeting was recently held in the Central Music Hall of this city for the avowed purpose of establishing a Home for crippled children. Many prominent clergymen and sagacious business men lent their presence or their names to aid the enterprise quite thoughtless, it would seem that it would be quite as reasonable to found a home for persons suffering from typhoid fever or disabled by fractured bones. The conclusion which these thoughts leads to is obvious. The prominent clergymen, the sagacious men of business, the charitable ladies, and the medical men who appear at the end of the procession are wholly unaware that it is possible to *cure* crippled children, rendering them self-supporting and useful members of society; that it is a hospital and not a home to which such patients should be sent, and that it is the trained surgeon and not the gentle physician upon whom the responsibility of their care and cure would fall.

In this number of THE JOURNAL, and the succeeding, we publish a paper upon hip disease, to which it would be well for those interested in a home for crippled children to read with some attention.

It is written by two gentlemen who have had unlimited opportunities for observation. There it will be learned that only about eight per cent. of all cases die; and of those that live all are curable without other deformity than a slight shortening of the limb or stiffness at the joint; that very many have normal length of the limb and normal motion at the joint; and that all have sound, strong and useful limbs.

Nearly as good results may be expected in POTT's disease. The deformity of POTT's disease may be prevented if diagnosis is made sufficiently early, *i.e.*, before the deformity has occurred; that in other cases, where the deformity has occurred, it can be reduced if treatment be commenced before consolidation has taken place and carried persistently forward; and that in the old and most inveterate cases all increase of deformity can be prevented, the duration of the disease shortened, and an improved attitude gained.

It is, then not a home with free food and clothing that the crippled children demand; it is a hospital for the correction of their deformities and the care of their diseases.

 THE CAUSES AND TREATMENT OF PREMATURE BALDNESS.

Under the above heading the *Medical News* discusses an article from the pen of SEEGER (*Wiener Klinik*, December, 1892). The fact that baldness is more common in men than in women at once suggests to the writer that the difference is to be found

in the care and covering of the hair in the two sexes. The same observations were made more than twenty-five years ago, and yet the number of bald-headed dermatologists to be seen in medical gatherings is steadily increasing. That baldness is much greater among men is an unquestioned proposition, and that it should be at once referred to differences in dress and manner of wearing the hair is most natural, *post hoc ergo propter hoc*. We are reminded in this connection of a celebrated gynecologist who observed in one of his clinical lectures that women with straight pubic hair were often sterile, when one of his students naively inquired if curling the pubic hair was not an indicated remedy in sterility?

One writer further finds that men wear heavy, rigid hats, that constrict the forehead, and discourage perspiration. The moisture and heat stimulate an abundant but unhealthy growth of hair. Among other causes it is noted that men wear their hair short. We are told that short hairs grow faster but do not possess so much vitality as long hairs, nor do they afford so much protection to the scalp. It is apparent that writers on this subject have fallen into the habit of mistaking mere association for cause and effect. Coincident phenomena are not necessarily causal in their connection. There is nothing in the above argument that would not apply to parietic dementia, it too is a disease more common in men than women, and the same want of ventilation and constricting hat bands, are coincident with the development of this disorder. Again, if these causes are so prolific in producing baldness, we must assume that the nutrition of the hair of the head is unlike that on any other portions of the body. Falling of the pudendal hairs is a very rare phenomenon, and yet they are peculiarly exposed to heat, moisture, and the accumulation of decomposing secretions. Again, the success of one of the older hernia operations was jeopardized by the growth of hair, and the accumulation of secretions in the invaginated portions of skin. Hairs grow abundantly in the nostrils, and persist there notwithstanding the heat and moisture. If frequent cutting of the hair is a cause of baldness, why is it that the beard survives the process of shaving, and that men who shave regularly have quite as heavy beards as those who allow them to grow?

The foregoing considerations are quite sufficient to show that we have not stated all, or indeed most, of the causes of baldness, especially when we consider that it is peculiarly a racial disease, some divisions of the human family being exempt from the disorder, notwithstanding the most unsanitary head covering. The fact is that premature baldness seems to affect males of the highest developed Aryan races, just as hysteria affects its females. Both are conditions due to heredity and racial peculiarities. Per-

haps we are losing our hair for the same reason that we are said to be losing our teeth; because they are no longer needed. The condition marks then but a step in the upward adjustment of the human form in advancing civilization. The early loss of the hair and teeth may yet be recognized as a sign of culture and refinement; and as was remarked some years ago in this JOURNAL, the escutcheon of the future will have for a ground a hairless scalp with a decayed tooth rampant.

THE MEDICAL SOCIETY OF THE STATE OF NEW YORK.

The President, DR. L. S. PILCHER, in his address delivered at the annual meeting in Albany, February 7, referred to the American Medical Association as follows:

The American Medical Association and State Representation.—I have the pleasure of presenting to this Society at this time a communication from Dr. William B. Atkinson, Permanent Secretary of the American Medical Association, transmitting a resolution adopted by that Association at its session held in Detroit, June, 1892, appointing a committee of five, instructed to meet a like committee from the State Medical Society of New York, and the State Medical Association of New York, for the purpose of adjusting all questions of eligibility of members of the State Medical Society of New York to membership in that Association, and notifying this Society that the committee had been appointed, consisting of Drs. N. S. Davis, of Illinois; John H. Rauch, of Illinois; William T. Briggs, of Tennessee; Dudley S. Reynolds, of Kentucky; and Willis P. King, of Missouri.

The evident intention of this resolution was to request that this Society appoint a similar committee to confer with the committee named, although the resolution as transmitted does not say so. It is difficult to see what purpose such a conference as is proposed could serve. The American Medical Association is very properly its own judge of what shall be the qualifications required of its members. It is a voluntary Association, responsible to no one, and may change its standard for admission at its will. At its session at St. Paul in June, 1882, it voted that the Medical Society of the State of New York was not entitled to representation in it, because the Code of Ethics adopted by that Society essentially differed from, and was in conflict with, the Code of Ethics of the American Medical Association. The status of affairs to-day differs in no respect from what prevailed in 1882, save that a year or two later the American Medical Association adopted an explanatory declaration which practically interpreted its own Code to mean the same as the Code already adopted by the Medical Society of the State of New York. It did not, however, rescind the vote of dis-fellowship adopted in 1862, but, on the contrary, at the recent meeting in Detroit, renewed it and extended it, to embrace not only this Society as an organization, but also all persons who affiliated with it. At this same meeting, also, it appointed a committee to report upon the revision of its own Code of Ethics. There is therefore no certainty as to

what the future Code of Ethics of the American Medical Association will be. It would be highly improper for the Medical Society of the State of New York to assume in any way to dictate to, or even suggest to, any organization not subordinate to it, what ethical standard, if any, such an organization should adopt. It must content itself with regulating its own standards, as it now does, suggesting in turn that it is equally indelicate for organizations which have no supervising relation to it to extend advice as to its internal affairs. Practically the relations of the Medical Society of the State of New York to the American Medical Association are the same as those which it sustains to the British Medical Association, the Canadian and Ontario Medical Associations, and to the Medical Societies of the various adjacent States to which it is in the habit of sending delegates annually, viz.: the relations of courtesy and comity. All these medical organizations named continue to receive with due honor and respect the delegates appointed by this Society, and doubtless whenever the American Medical Association shall signify its desire that this Society shall again send delegates to its meetings, such delegates will be sent. The Medical Society of the State of New York, however, must meanwhile be content to do its own work in its own way, awaiting the pleasure of the Association in question. Nevertheless, since a failure by this Society to appoint such a committee as is contemplated in the communication from the American Medical Association, would doubtless be construed by many, who are still ignorant of the real relations which exist between the two organizations, as displaying a factious and quarrelsome spirit, and as a matter of simple professional comity, I would advise that a committee of five be appointed by this Society to meet the committee of the American Medical Association as requested.

The Present Code of Ethics.—In the course of the discussions which have been provoked by the action of the American Medical Association just alluded to, it has come to the knowledge of your President that many of the physicians of this State are convinced that in view of the present state of general enlightenment prevailing throughout the State of New York, and the safeguards which by legal enactments are thrown about the entrance into the medical profession, it would comport more with the dignity of the medical profession, and would enhance the respect in which it is held by the general public if all specific rules of ethical conduct were elided from the by-laws of the State Medical Society, and if the regulation of such matters were hereafter left to the judgment of individual practitioners influenced by the well-known consensus of professional opinion and local custom in the places where the work of each is being carried on. Among a large number of representative physicians from all portions of the State with whom I have conferred on this point, I have found a singular unanimity of feeling on this subject. The only hesitancy which any have expressed has been as to whether it would be wise, since practically this is already the present status of the profession in this State, to make any movement looking to a formal revision of a Code from our by-laws, lest it should revive acrimonious discussion, and reawaken strife that would be detrimental to the higher interests of the profession in this State. By far the greater weight of the opinions which I have

been able to elicit has, however, been that no such result would follow; but that, on the contrary, such action would tend still more to heal old differences and bring together all the elements of medical profession in this State. Such is also my own mature opinion, and further, it has seemed to me that at present, where there is a general revival of interest in the matter of professional ethics, as is evidenced by the discussions which are now going on in the medical journals of the country, and when this question of Code is again unavoidably brought to the attention of this Society, that it is a specially favorable moment for taking this final step. At the present time the only allusion in the by-laws of this Society to a system of Medical Ethics is the very brief § 8 of Chapter VI., which merely says:

"The system of medical ethics adopted by this Society, February 7, 1882, shall be considered authoritative to govern the medical profession in the State of New York."

I would recommend that this section be dropped *in toto*. The effect of such action would be to leave this State Society without any formulated Code of Ethics, and to relegate the Code of 1862, together with that of 1847 and 1823, to the domain of history, though ever remaining of interest and value to the student of the development of ethical standards in the medical profession of this State.

Report of Committee on the President's Address.—DR. VANDER VEER read the report. It recommended the following:

That the Society reserves to itself the right to punish its members for any unprofessional conduct.

The determination of what shall be considered unprofessional conduct shall rest with the Society. If at any time charges are preferred against a member of the Society, these charges are referred to a committee which already exists for a similar purpose. This rule shall take the place of paragraph eight of chapter six of the by-laws, as well as the rules adopted by this Society in February, 1882.

Resolved, That the Society deems it unwise, at this time, to appoint any committee of conference with the American Medical Association upon the subject of medical ethics, as requested by that distinguished body; but the Society ventures to express the hope that the American Medical Association, at no distant day, will take such actions as will remove the merely technical obstacle to the most cordial coöperation between the two societies.

The *New York Medical Journal* refers to this action as follows:

At the meeting of the Medical Society of the State of New York held this week the general endorsement of the recommendations contained in the president's inaugural address was followed by specific action by which the society's Code of Ethics was extinguished. This, of course, freed the Society from any obligation to delegate a committee of conference to meet the American Medical Association's special committee appointed to consider ways and means of re-establishing relations between the two organizations. The situation seems, therefore, to be somewhat improved; the State Society has no Code of Ethics, and consequently is less at variance with the American Medical Association than when it had a Code that positively clashed with the Association's code. It remains to be seen, however, whether other relations

between the two bodies than those of "comity" will again come into existence.

In this action of the New York State Medical Society there seems to be a rolling back and away of the clouds and mists that have obscured the relations of that organization with the American Medical Association.

We look hopefully to the committee appointed by the American Medical Association at its last meeting, to report for the approval of and adoption by that organization of a code of ethics, constitution and by-laws, that will be acceptable and provide an organic law that will make possible a unification and membership in one body of every practitioner of rational medicine in this country.

AN ARMY MEDICAL BOARD will be in session in New York City, N. Y., during April, 1893, for the examination of candidates for appointment to the Medical Corps of the United States Army, to fill existing vacancies.

Persons desiring to present themselves for examination by the Board will make application to the Secretary of War, before March 15, 1893, for the necessary invitation, stating the date and place of birth, the place and State of permanent residence, the fact of American citizenship, the name of the medical college from whence they were graduated, and a record of service in hospital, if any, from the authorities thereof. The application should be accompanied by certificates based on personal knowledge, from at least two physicians of repute, as to professional standing, character, and moral habits. The candidate must be between 21 and 28 years of age, and a graduate from a Regular Medical College, as evidence of which, his Diploma must be submitted to the Board.

Further information regarding the examinations may be obtained by addressing the Surgeon General U. S. Army, Washington, D. C.

C. SUTHERLAND,
Surgeon General U. S. Army.

BOOK REVIEWS.

INTERNATIONAL CLINICS: A QUARTERLY OF CLINICAL LECTURES ON MEDICINE, NEUROLOGY, PEDIATRICS, SURGERY, GENITO-URINARY SURGERY, GYNECOLOGY, OPHTHALMOLOGY, LARYNGOLOGY, OTOTOLOGY, AND DERMATOLOGY. By Professors and Lecturers in the leading Medical Colleges of the United States, Great Britain, and Canada: Edited by JOHN M. KEATING, R. D., Colorado Springs, Col., Fellow of the College of Physicians, Philadelphia, etc., JUDSON DALAND, M. D., Philadelphia, Instructor in Clinical Medicine, and Lecturer on Physical Diagnosis and Symptomatology in the University of Pennsylvania, etc., J. MITCHEL BRUN, M. D., F. R. C. P., London, England, Physician and Lecturer on Therapeutics at the Charing Cross Hospital, D. W. FIXLAY, M. D., F. R. C. P., Aberdeen, Scotland, Professor of Practice of Medicine in the University of Aberdeen, etc. Vol. III, Second Series, 1892. Philadelphia. J. B. Lippincott & Co.

There are 53 contributors to this volume on 77 subjects, filling 393 pages. The 24 plates are mostly well made, and there are 40 figures. The sections are apportioned as follows: medicine, 118 pages, surgery, 66, neurology, 60, gynecology and obstetrics, 58, ophthalmology and otology, each 19, pediatrics, 17, dermatology 15, laryngology and rhinology, 9, genito-urinary surgery 7.

The initiatory lecture is by Dr. Wm. Pepper, on eouges-

tion of the kidneys, etc. He presented one case that illustrated the beneficial effects of injections of morphine in small doses to quiet the nervous system, secure rest, and increase the nerve power, which in turn acts favorably on the kidneys and induces a more active secretion. He does not ignore the fact that in organic disease of the kidneys, with greatly reduced secretion of urine, opium is a dangerous drug. Another case showed remarkable improvement following the exhibition of sulphate of sparteine.

Peritonitis and its treatment, by Dr. A. W. Mayo Robson, of England, is the subject of a lecture which places him on the same plane with many American surgeons in the treatment of abdominal diseases. On page 38 he says: If relief does not occur from general treatment, advise abdominal section, when you will probably discover the cause, which may be remediable."

Dr. N. S. Davis, Jr., gives an excellent description of uræmia and its management. He believes that pilocarpine is contraindicated when the heart's action is weak, and he makes incisions instead of needle punctures about the ankles for anasarca. He recommends croton oil in minim doses; and morphine as well as chloroform and ether for the convulsions. The urine was much augmented by lactose.

Dr. Robert F. Wier reports a successful case of bone grafting. He operated on a tibia shortened by necrosis, fractured the fibula, and wired together the two corresponding ends of the bones above and below the seat of fracture. Union occurred and resulted in a useful, although shortened, limb.

Dr. Flemming Carrow describes his technique for cataract extraction. His patient was 90 years old. He was confined to bed 18 or 20 hours and then allowed to be in a moderately lighted room. The bandages were changed once in 24 hours, and the eye was opened on the fifth day.

Dr. David Webster has abandoned the actual cautery in large corneal ulcers and has returned to the old operation of paracentesis.

Dr. Thos. R. Pooley believes that cocaine used repeatedly endangers the integrity of the cornea.

Dr. J. Orme Green has rendered good service by directing attention to the frequent occurrence of inflammation of the middle ear in the acute infectious diseases. This common, but over-looked and neglected complication will be more readily recognized and appreciated if his lecture is widely read.

A striking example of the ungraceful and detrimental situations into which men fall when they attempt to teach outside of their customary lines of study, may be found on page 384. Dr. Beverly Robinson is lecturing on otology. In treating of otorrhœa he warns his hearers against doing anything to stop a purulent discharge further than to syringe the ear and to mop it out with cotton on a probe. He says: "If the discharge be very abundant, do not try to stop it too soon." As if one should say: "If your house is on fire, do not try to put it out too soon." If the discharge becomes fetid he allows some mild lotion, like a two grain solution of zinc sulphate. He thinks the discharge will be likely to diminish after a week or two, with little or no treatment. He mentions one class of cases in which he deems it important to stop the discharge, namely, tubercular. He objects to the use of such fine (ideal) powder as boric acid, but concludes that "scraping out the ear" might do good, and before he gets through with that ear he coolly knocks the most cherished props from under the favorite rules of practice of our most successful and accomplished otologists.

This is another illustration of the fact that one man cannot excel in all the branches of medicine, however clever he may be.

With the very large number of contributors to this work the subscriber may feel certain of acquiring in the series a veritable thesaurus, upon which he can draw for help in his difficult cases, with confidence. Many of the authors are well recognized authorities on both sides of the globe. A few are not known by their writings, but this opportunity may serve to induce brilliant, but hitherto hidden, lights to shine, and to illuminate many of the dark places that come in every practitioner's experience. It can be fairly said of these collections that their faults are few, and they are obscured by the great array of scientific facts that are marshaled in a masterly manner.

DISEASES OF THE RECTUM. By JOSEPH M. MATTHEWS, M.D., Professor of the Principles and Practice of Surgery and Diseases of the Rectum in the Kentucky School of Medicine. New York. Dr. Appleton & Co. (Illustrated by six chromo-lithographs.)

It is with pleasure that we announce the appearance of this classical work. As was to be expected from the pioneer in rectal surgery in America, Dr. Matthews has given us the best book extant on his special branch of surgery. The author has certainly shown that his pen is as gifted as his tongue. The preëminent qualifications of the work under consideration is its practicability and originality of method.

Dr. Matthews does not appear to have much faith in the efficacy and safety of the treatment of hemorrhoids by carbolic acid. It is a question in the mind of the writer, whether it is not the abuse, rather than the use of this method that is open to criticism. The operating surgeon is likely to despise all but operative methods. There are several specialists who operate only exceptionally, yet are doing most excellent work by local applications of astringent antiseptics and anodynes in cases that most surgeons would operate upon without delay. That itinerant quacks may misuse valuable methods is true, but this does not prove that all of their methods would be useless or dangerous in proper hands.

Taken all in all Matthews' work is one which no surgeon can afford to be without, and a large circulation is to be expected.

HAND-BOOK OF EMERGENCIES AND COMMON AILMENTS. Explaining the latest approved Treatment of Injuries, sudden and painful Attacks, Poisoning, and many common Diseases. By E. F. BRADFORD, A.B., M.D., (Harvard), Member of the American Medical Association, etc. Assisted by LOUIS LEWIS, M.D., Member of the Royal College of Surgeons, Eng.; one of the Editors of the *Medical Times and Register*, Philadelphia. Together with other Writers on special Subjects. Sold by Subscription only. Illustrated. Boston: B. B. Russell.

Here is a book that physicians can conscientiously advise their patients to read. It is full of common sense, and scientific facts made comprehensible to the reader of average intelligence. The uses of domestic remedies and of many new ones are taught. Proper precautions are given concerning the employment of these, and of illuminating oils, gas, etc. There are directions for resuscitating persons who are apparently drowned, asphyxiated, poisoned, etc. Tables of poisons and their antidotes, and the proper treatment, are given a conspicuous place. It may be thought that the people should not be taught to administer such remedies as laudanum and chloroform, but if they will keep them in the house and use them in the absence of medical advice, it is no doubt best that they should have such a guide as this book provides. If they do not deviate from the directions laid down, no harm will come.

Fortunately there is little to criticise. On page 87, in the article on insect bites, it is advised to bathe the face, neck, hair and all exposed parts "with a weak solution (50 per

cent. of carbolic acid" for mosquito bites. This is not a weak solution. It is strong enough to corrode tissues. Probably the author meant a 5 grain, instead of a 25 grain, solution.

The aim of the book is, not to make every person his own physician, but to teach everyone how to take care of himself when a physician is not really needed, and what to do while awaiting a physician's arrival, when it becomes necessary to summon one. Whenever a doubt exists as to the nature or cause of suffering, the reader is advised to consult a doctor. A good idea of the general tenor of the work is given on page 221. After giving a description of strangulated hernia, the paragraph on treatment begins thus: "What should be done? Send for a surgeon at once." Then follows a sensible course to be pursued until the surgeon arrives.

This little book will render important assistance to physicians, directly by reference to its pages, and indirectly by the more intelligent actions of patients and their friends. It contains a great deal of practical information not to be found in medical text-books. There ought to be at least one member of every family who should become familiar with its contents—the mother.

TWENTY-THIRD ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF MASSACHUSETTS. Boston: 1892.

This is one of the most valuable contributions to the science of public hygiene. The examination of water and the study of typhoid are among the most valuable contributions to this subject made during the present year.

This book contains two valuable biological papers, one on the differentiation of the typhoid from other bacilli, by Geo. W. Fuller, the other on urogena, by Grey N. Calkins.

MISCELLANY.

AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION—At the second annual meeting of the American Electro-Therapeutic Association, the following officers were elected for the ensuing year:

President, Dr. Augustin H. Goelet, 531 West 57th Street, N. Y.; First Vice-President, Dr. Wm. F. Hutchinson, Providence, R. I.; Second Vice-President, Dr. W. J. Herdman, Ann Arbor, Mich.; Secretary, Dr. Margaret A. Cleaves, 68 Madison Avenue, New York; Treasurer, R. J. Nunn, 119 York Street, Savannah, Ga.

The third annual meeting will be held in Chicago on Sept. 12, 13 and 14, 1893. A cordial invitation is extended to all members of the profession interested in electro-therapeutics. Arrangements for special rates on railways and at hotels are in progress.

The Committee of Arrangements will be obliged if those who intend being present at the meeting will send their names, the class and amount of accommodation required, titles of papers to be presented, applications for membership, etc., at as early a date as possible. Accommodation should be secured early on account of the crowded condition of the hotels, because of the World's Fair. All communications should be addressed to the Secretary.

The Committee will be glad to furnish any information in regard to the meeting upon application.

S. C. STANTON, *Secretary*.

FRANKLIN H. MARTIN, *Chairman*.

The Section on Laryngology and Rhinology of the Pan-American Medical Congress is now thoroughly organized with Secretaries in all the countries of South America as in the United States and Canada.

The President, Dr. E. Fletcher Ingalls, of Chicago, is making a thorough canvass to secure a large number of good papers for the Section, and aided as he will be by the able Secretaries, Drs. Murray and y Alonzo, and the corps of honorary Presidents he feels assured of the success of this department of the Congress. The honorary Presidents are:

Dr. Harrison Allen, Philadelphia; Dr. Frank H. Bosworth, New York; Dr. S. Solis Cohen, Philadelphia; Dr. D. Bryson Delavan, New York; Dr. J. F. Dixon, Portland, Oregon; Dr. Stephen Dodge, Halifax, Nova Scotia; Dr. W. C. Glasgow, St. Louis; Dr. Frederick J. Knight, Boston; Dr. Geo. M. Lefferts, New York; Dr. Alvaro Ledan, Villa Clara, Cuba; Dr. John N. Mackenzie, Baltimore; Dr. David Matto, Lima, Peru; Dr. P. Emilio Petit, Santiago, Chili; Dr. John O. Roe, Rochester, N. Y.; Dr. Federico Semeleder, City of Mexico, Mexico; Dr. Chas. E. Sajous, Paris, France.

The Secretaries for foreign countries are:

Dr. Ovejero, [Piedad 22] Buenos Ayres, Argentine Republic; Dr. Guedes De Mello, Rio de Janeiro, U. S. of Brazil; Dr. G. W. Major, Montreal, Canada. Dr. Felix Campuzano, [Virtudes 33], Havana, Cuba; Dr. Luis Fonnegra, [Calle 10, Número 263], Bogota, Republic of Columbia; Dr. Fabricio Uribe, Guatemala City, Guatemala; Dr. Henri Goulden McGrew, Honolulu, Hawaii; Dr. Angel Gavino, [Cocheros 15], City of Mexico, Mexico; Dr. J. Midence, Leon, Nicaragua; Dr. Eugenio Cassanello, [San José 119], Montevideo, Uruguay; Dr. Napoleón F. Cordero, Merida, Venezuela.

All physicians interested in this Section are requested to correspond with the secretaries for the United States. Dr. J. Maron y Alonso, (Spanish speaking,) Las Vegas, N. M.; Dr. T. Morris Murray, (English speaking,) Washington, D. C.

RAILWAY SURGEONS OF OHIO.—The Railway Surgeons of Ohio are called to meet in the amphitheater of the Ohio Medical University at Columbus, Ohio, on March 17, at 9 o'clock A.M., standard time, for the purpose of organizing an Ohio State Association of Railway Surgeons. It is hoped that all interested will make an effort to be present and take part. Those who expect to be present will please drop a line to the Secretary at Sandusky, that an estimate may be made and proper entertainment provided.

CHARLES H. MERZ, *Secretary*. S. S. THORNE, *President*.

THERE are thirty-three ophthalmologists located in Denver, and other specialists in proportionate numbers. Most of them attracted to that city by the salubrity of climate and their own physical ailments. Under such conditions there is not likely to be much of a rush of business for every one.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from February 4, 1893, to February 10, 1893.

Capt. Paul Shillock, Asst. Surgeon U. S. A., promoted as such, to date from January 31, 1893, in accordance with the Act of June 23, 1874.

Capt. Charles B. Ewing, Asst. Surgeon U. S. A., the order assigning him to duty as post surgeon, Ft. McHenry, Md., is suspended until June 1, 1893, when he will comply with the order. By direction of the Secretary of War.

Capt. Junius L. Powell, Asst. Surgeon U. S. A., leave of absence granted is hereby extended one month.

OFFICIAL LIST OF CHANGES of Stations and Duties of Medical Officers of the U. S. Marine-Hospital Service, for the four weeks ended February 4, 1893.

Surgeon F. W. Mead, to proceed to New London and New Haven, Conn., as Inspector, February 4, 1893.

Surgeon H. R. Carter, granted leave of absence for thirty days. February 3, 1893.

P. A. Surgeon J. B. Stoner, to assume command of Service at Portland, Ore. January 17, 1893.

Asst. Surgeon G. B. Young, when relieved, to proceed to Pittsburgh, Pa., for duty. January 17, 1893.

Asst. Surgeon L. E. Cofer, placed on waiting orders, January 23, 1893.

Asst. Surgeon J. M. Eager, to proceed to Cape Charles Quarantine for temporary duty, February 3, 1893.

Asst. Surgeon W. J. S. Stewart, to proceed to Norfolk, Va., for temporary duty, February 1, 1893.

DEATH.

P. A. Surgeon Spencer C. Devan, died February 1, 1893, at Philadelphia, Pa.

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ORIGINAL ARTICLES.

RECENT JUDICIAL EVOLUTION AS TO CRIMINAL RESPONSIBILITY OF INEBRIATES.

Read in the Section of Neurology and Medical Jurisprudence, at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

BY CLARK BELL, ESQ.,

PRESIDENT AMERICAN INTERNATIONAL CONGRESS OF MEDICAL JURISPRUDENCE.

By the common law of England it was conceded the words "*non compos*" meant a total deprivation of reason. Lord Coke divided it into four parts or as he called them "manners."

1. The idiot or fool. 2. He who of good and sound memory at birth lost it by visitation of God. 3. Lunatics who have lucid intervals and sometimes of good sound memory and sometimes *non compos mentis*. 4. By his own act as a drunkard. So that drunkenness at and by common law, under certain circumstances, was a form or species of insanity. By the same common law it was held: 1. That the drunkard was responsible for all his acts criminally, even if the state of drunkenness was such as to make him insensible to his surroundings and unconscious of his acts. 2. That drunkenness instead of being any defense to a charge of crime committed while in a state of intoxication, was not only no defense but that it aggravated the act.

These doctrines were upheld by the English courts in *Damarees* case 15, St. Tr. 592; *Frost* case, 22 St. Tr. 472; *Rex v. Carroll* 7 c and p. 115; and these doctrines have been held likewise in nearly all the American States.

In Alabama, *State v. Bullock*, 13 Alabama 413; in California, *People v. King*, 27 California 507; in Connecticut, *State v. Johnson*, 40 Connecticut 106; in Delaware, *State v. McGonigal*, 5 Hartford 510; in Georgia *State v. Jones*, 20 Georgia 534; and in nearly every American State, similar decisions have been made.

The common law which would not uphold a deed, will, or contract, made by a drunken man in an unconscious state of intoxication, would hold the same man criminally liable for every act constituting a violation of the criminal law. To-day we are regarding those views as legal curios and relics of the past. The law should have its museums for the preservation of its antique anomalies. A silent unconscious change has been wrought in the law, not by legislation, but by the growth of ideas and the diffusion of knowledge. Insanity is now demonstrated to be a disease of the brain, of which it is itself an outward manifestation. Inebriety is also shown to be a disease of the man manifesting itself through brain indications, which demonstrate it to be a form of insanity wholly dominating the volition and beyond the power of the victim to control and it is now so

treated. The essential element of crime *intention* hardly fits into the acts of the unconscious inebriate, who while *blind* or *dead* drunk, kills an innocent victim, and the absence of motive like the absence of *intention*, are missing links in that chain, which the law exacts, in regard to all criminal action. It would be next to impossible now, to find a judge willing to charge a jury, that a crime committed by a man in a state of intoxication, in which the accused was unconscious of his act, or incapable of either reflection or memory should be placed on a par, with one fully comprehended and understood by the perpetrator.

Buswell says in speaking of the old doctrine of drunkenness being an aggravation of the offense "it is apprehended that this is the expression of an ethical rather than a legal truth." (Buswell on Insanity). Such considerations compel us to inquire: What is law? There are two schools of thought regarding it.

Webster, the great expounder of the American constitution is credited with saying, "Law is any principle successfully maintained in a court of Justice." This represents one school.

Richard Hooker in his ecclesiastical polity represents the other, he says of law: "There can be no less acknowledged, than that her seat is the bosom of God, her voice the harmony of the world, all things in heaven and earth do her homage, the very least as feeling her care, the greatest as not exempted from her power." The gulf intervening between these two extremes is as wide and deep as that which divided Abraham and Lazarus in the parable of our Lord.

The framers of the New York Penal Code, without the courage to hew down the error of the old doctrine, engrafted thereon a provision, that enables a jury now in that State, to pass on the *motive* and the *intention* of the unconscious and wholly insensible inebriate; so that by law now in New York since the Penal Code of that State, a conviction would in such a case be well nigh impossible.

How have the English judges met the question? In 1886, Mr. Justice Day in *Regina v. Baines* at the Lancaster assizes, charged a Lancaster jury: "That if a man was in such a state of intoxication that he did not know the nature of his act or that it was wrongful, he was insane in the eye of the law; and that it was perfectly immaterial whether the mental derangement resulting from such intoxication was permanent or temporary." In 1887, Chief Baron Pilles held that "if a person from any cause, say long watching, want of sleep, or deprivation of blood, was reduced to such a condition that a smaller quantity of stimulants would make him drunk, and that would produce such a state if he were in health; then neither law nor common sense could hold him responsible for his acts, inasmuch as they were not voluntary but produced by disease."

As long ago as 1865, in the case of *Watson* tried at Liverpool for the murder of his wife before Baron

Bramwell, the evidence showed that he was laboring under delirium tremens. After the act he grew calm and said that he knew perfectly well what he had done and that his wife was in league with men who were hidden in the walls. "Baron Bramwell, who favored hanging insane men who committed homicides when acting under an insane delusion, if of sufficient intelligence to understand the nature and quality of the act and its consequences, tried the case and charged the jury, "That there were two kinds of insanity by reason of which a prisoner was entitled to be acquitted; probably the jury would not be of opinion that the prisoner did not know the quality of his act, that it would kill and was wrong, but it was still open to them to acquit him, if they were of opinion that he was suffering from a delusion leading him to suppose that, which if true, would have justified him in the act; one more remark he would make, viz.: That drunkenness was no excuse and that a prisoner cannot by drinking qualify himself for the perpetration of crime, but if through drink his mind had become substantially impaired, a ground of acquittal would then fairly arise.

The prisoner was acquitted. Under the English law, there is no right of appeal to the convicted homicide as in the American States, and so it is difficult to find the decision of English higher courts on the questions involved in the discussion.

In the American States no person is executed except on the decision of the highest court of the State if the accused desires it and appeals; in England the appeal does not lie as a matter of right and so the opinion and dicta of the English trial judges form the real body of the law of England upon these questions.

Baron Bramwell undoubtedly regarded Watson as entitled to an acquittal, and the case shows a remarkable result in this respect; had he been insane and committed the homicide under delusions which dominated his will and controlled his action, he would have been convicted if he had sufficient intelligence to understand the nature and the quality of the act, but the drunkenness which had caused the attack which resulted in delirium tremens with a diseased condition of the brain also resulted in a delusion, which controlled his mental powers, so as to render him irresponsible at law.

In 1888, Baron Pollock held, that the law was the same where insane predisposition and not physical weakness was the proximate cause of the intoxication." The English Home Secretary, Mr. Matthews is one of the ablest men connected with the English Government.

Under the English system he has the power to commute or modify the sentence of the courts in criminal cases, and he exercises it with as much effect and more in many cases than would the reversal of the Appellate court, if the right of appeal existed.

No eye in Great Britain sees more clearly or more intelligently the action of the criminal courts than his. It is his province to correct errors and redress grievances and abuses, if such exist or occur in the criminal jurisprudence of Great Britain. He has recently named a commission composed of Mr. J. S. Wharton, Chairman, Sir Guyer Hunter, II. P. Mr. E. Leigh Pemberton, Assistant under Secretary of the Home Department: Mr. Daniel Nickolson, Super-

intendent of the Broad Moor Criminal Lunatic Asylum, and Mr. C. S. Murdock head of the Criminal department, to inquire into the best mode of treatment and punishment for habitual drunkards.

Mr. Matthews says regarding the appointment of this committee, "Great difference of opinion has arisen as to what kind and degree of punishment for offenses committed by habitual drunkards would be the most effectual, both as a deterrent and with a view to the reformation of such offenders; it appears to me that advantage would result from an inquiry being made into the subject." It may be fairly claimed so far as the British Islands are concerned that the old common law rule no longer is enforced there, and that inebriety as a disease is now not only recognized as an existing fact, but that the jurisprudence of that country is receiving such modifications as are necessary to fit it, for the advance made by scientific research.

We are doubtless near similar results in the American States.

ON CHOREA, VIEWED FROM THE STAND-POINT OF COMPARATIVE PATHOLOGY.

WITH AN ENTIRELY NOVEL THEORY AS TO THE CAUSE OF THE MUSCULAR TREMOR AND INCOÖRDINATION, AND A NEW THERAPEUTICS.

Part of a Clinical Lecture delivered February 3, 1893.

BY HORATIO C. WOOD, M.D., LL.D.,

PROFESSOR OF MATERIA MEDICA, PHARMACY AND GENERAL THERAPEUTICS, AND CLINICAL PROFESSOR OF NERVOUS DISEASES, IN THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF PENNSYLVANIA, ETC.

[Stenographically reported for THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.]

Gentlemen:—I am going to occupy your attention this morning with the discussion of a subject which is of great scientific interest, and which may prove to be a discovery of considerable practical importance. Some years ago, as you know, I gave much attention to the subject of the physiology of the choreic movements. At that time, I made a number of experiments upon the lower animals, especially upon dogs, and succeeded in demonstrating, in the dog, that these movements had their origin in the spinal cord. I found that in the choreic dog, after dividing the spinal cord in the dorsal region, the movements continued in the posterior extremities just the same as before, save that, after the division of the cord, the muscular movements in the fore-limbs and hind-limbs were no longer synchronous; that is to say, rhythm did not agree as before.

On coming to apply these observations to man, I must tell you that we have in the human subject two varieties of choreic movements: in one form, they correspond with those in the lower animals. This is the variety known as "St. Vitus' dance," which is rare in adults but common in children, and undoubtedly affects the spinal cord, as I shall presently explain. The second form is common among adults but rare in children. In it the movements are more violent and even convulsive. These have their origin in the cortex of the brain, from minor lesions in the motor areas; but there may be widespread and destructive lesions in the motor regions of the cortex. I may illustrate this by a case that I saw several weeks ago. It was that of a boy, who was found in an out-house, unconscious, pulseless, appar-

ently dying, and, indeed, at first, was thought to be dead by those who found him in this condition. He was suffering from poisoning by inhaling coal gas. He was carried into his home and resuscitated; but it was found, after regaining consciousness, that he had violent, apparently purposive movements of the arms and legs, which he could not control. The limbs were thrown about by irregular, muscular contractions, and he was kept in bed with difficulty; in other words, he had a furious attack of acute, cerebral chorea. I attributed the chorea to multiple cortical embolism, the result of the arrest of circulation during the period of suspended animation, and I said that the case would die. The patient did die a few days afterward, but the choreic movements never ceased until death. Owing to some misunderstanding, I was not at the autopsy, and no parts of the brain were saved. It was found intensely congested, but there was no careful microscopical examination of the cortical regions of the brain, such as would be required to establish my diagnosis. This is to be regretted, but cannot now be helped.

Returning now to the form of chorea first mentioned, which usually occurs among children, I have arrived at the conclusion that the cause of the choreic movements is a paralysis, or depression, of the inhibitory function of the cells of the spinal cord. You know, from your studies in physiology, that there are in the spinal centres, as elsewhere in the brain, motor cells, and others which inhibit or arrest the discharge of motor impulses. It has been denied that inhibition exists; but I think the researches of Gaskell have demonstrated that in the heart (and as I believe, everywhere in the body), there is a period of functional excitement with discharge of force and destruction of tissue, and a period of functional quiet with repair of tissue. The accelerator nerve stimulates to functional activity; the inhibitory nerve to functional rest and reparative activity.

Now, it has occurred to me that the choreic movements in the form under consideration, as they occur in the child, are due to loss of inhibition. If you will observe a choreic child attempt to pick up an object such as a piece of paper from a table, you will see that the muscular movements are exaggerated so that the hand moves through a much wider range of motion than in health, the result being that the child will be obliged to make several attempts before the object is attained. The wider range of motion in this case is evidently due to a failure to arrest the motor impulse at the proper period. There has been a failure of the inhibitory function of the spinal cord to arrest the movement at the proper time. This explains the causation of the peculiar muscular movements in this form of chorea. I believe that it is based upon a new observation in the physiology of the spinal cord; it is new, at least, as far as my reading goes.

For some time I have had this in my mind, and have been casting my thoughts around endeavoring to find out how to confirm this theory. It finally occurred to me that I had been teaching you, in my lectures on therapeutics, for many years, that quinine has the property of exciting the action of the spinal inhibitory cells. You recall Chaperon's experiments, which established the fact that in small doses quinine causes in frogs a lessening of reflex activity, which, however, is restored by section of the medulla, thus showing the independent action

of the spinal cord when relieved from the inhibition coming from above. This led to the discovery of the inhibitory centres of the medulla by Setschenow and the location of Setschenow's centre. Small doses of quinine stimulate Setschenow's centre, and lessen reflex activity; but large doses cause permanent paralysis of reflex activity. It is evident that the larger doses act upon the spinal motor cells in the same manner that the small doses affect the higher centres. There are many other facts which demonstrate the existence of spinal inhibition; but their discussion would lead us too far afield, especially since they do not bear directly upon the subject under consideration to-day.

Some years since Ringer and Murrell brought forward the theory that atropine is a paralyzer of inhibition. You remember the experiments of Fraser. He had killed some frogs with atropine, as he thought, and threw their bodies at night on the laboratory floor; but the next morning, on coming into the room, to his surprise he found all the frogs alive and in active convulsions. The only plausible explanation of this is that atropine, in the proper dose, paralyzes both spinal motion and motor inhibition, and that the effect of inhibition passes off and allows excessive motor discharge, and this produces violent muscular movements, not because of motor excitement, but because the restraining force of inhibition has been lifted off from them.

Sedgwick, of London, some time ago, objected to the theory of spinal inhibition, because of his discovery that atropine prevented the primary loss of reflex movements from being produced by quinine, which I referred to a few moments ago, as demonstrated by Chaperon. I think, however, that this fact cited by Sedgwick is really in favor of the theory, rather than in opposition to it, as he supposed. Quinine stimulates inhibition and atropine paralyzes it, therefore atropine would naturally set aside the physiological action of quinine. Does it not become apparent to you that Ringer and Murrell are correct in explaining the action of atropine? Can it be otherwise than that atropine and quinine oppose each other in their action upon the spinal cord?

In casting around for some means of testing my theory of the production of choreic movements, I first obtained some choreic dogs, to try the therapeutic experiment upon. I will first call your attention to this long roll of blackened paper upon which you observe this kymographic tracing, the register of the dog's choreic movements. Here you notice the continuous and rhythmical contractions of the muscle indicated by the needle upon the paper as it revolved upon the drum of the instrument. At this point where the movements begin to increase in their range, the animal had a hypodermic injection of atropine. These injections were repeated until two and a half grains (Gr. 0.15) had been given. Coincident with the administration of atropine the tracings show increase of amplitude, until they are increased fourfold. This increase seems to be attributable to the effect of the injections and, thus far, the results are exactly in accord with previous reasoning. The animal at this point, had an injection of six grains (grams., 4) of quinine, and immediately the movements declined and, in the course of from twenty to thirty seconds, entirely ceased. This is beautifully shown by the tracing. The amplitude of the excursions of the needle rapidly diminishes until they

cease absolutely. Now as to this action of quinine there can be no possibility of doubt. The atropine I have only experimented with once in a case of chorea; but the quinine I have used in a number of dogs and am positive that the quinine arrests the choreic movements in dogs, so that, as far as this goes, it carries out my theory.

My next line of investigation was to study the condition of the reflexes, such as the knee-jerk, in chorea. *A priori*, what would we expect to find in regard to the knee-jerk, in chorea? The motor-cells of the cord are in a state of weakness in a case of chorea; but the inhibitory cells are in a state of greater weakness. This would lead us to expect that in the first place, the reflexes would be less than normal. When, however, a voluntary movement is made, on account of the failure of inhibition, the motor impulses from neighboring cells would overflow, and reinforce the motor impulses beyond the normal amount and the reflexes would be increased. (Explanation of reinforcement, illustrated by drawing a diagram of spinal cord with motor and inhibitory cells, upon the blackboard.) In the normal condition, this overflow would be checked by the inhibitory cells, but when these are weakened experimentally, or by disease, it is not so checked and the reflexes are extraordinarily increased. I wrote to Dr. Wharton Sinkler requesting him to communicate to me his observation as to the condition of the reflexes in chorea. He replied that the phenomena are different from what might be expected, the reflexes are diminished in all cases of chorea; but that he had observed the curious fact that the knee-jerk in chorea is greatly increased by reinforcement. That is to say that, at the time the knee-jerk is tested, if some other muscular movement be performed, like extending the arms or tightly clenching the fists, the knee-jerk is greatly exaggerated. This I explain by the weakening of inhibition and the consequent overflow of motor impulse as already mentioned.

So far this is of scientific importance only. It appears to me as if, in the practical study of chorea, we have hitherto overlooked the phenomenon of inhibition. The phenomena of chorea, like those of hysteria, are not phenomena of increased excitement of motor centres; but of paralysis of inhibition. The conjunction of increased muscular and nervous discharge with evident weakness of the spinal centres is explained by the fact that the motor cells are weak; but the inhibitory cells are weaker still. Sometimes in chorea in the child, as commonly in the dog, the movements are rhythmical, and although they are constant the child does not get tired. No one in health could continue this motion for half an hour without fatigue. How can this be explained? In the anatomical rooms, you have learned to refer anomalies to a reversion to a lower type. You have seen how a stump is produced by evolution to a certain point for a certain purpose in the case of the animal, and that is altered by higher evolution in man. Now, I believe, that we may have a physiological reversion as well as an anatomical reversion, and applying this to the spinal cord, we may have a reversion of the function of the motor cells to those of the lowest type of nerve-cell in which the discharge of force is rhythmically continuous. Just as the beating of the heart never ceases during life, so it is the function of the primitive nerve-cell to unceasingly give off force. The strange phenomenon

of lack of tire in choreic movements, then may, in this way, be explained on the principle of reversion.

Applying these investigations to cases of chorea. It occurred to me to give quinine a trial. I may say, that it has been only during the last ten days that I have thought of this subject from the clinical standpoint. I have thus far had the opportunity of employing it in only one case in the human subject. It was a child with well marked chorea, brought by her mother to the Out-patient Department. She was ordered full doses of quinine, and was brought back in four days with the report that she was very much improved. I spoke to Dr. Pearson, of the Veterinary Department, and asked him to try the alkaloid in choreic dogs. He told me in the first place that he had never found anything that would do choreic dogs any good; his experience is that chorea in dogs is incurable. Here is an English setter dog suffering with chorea. One week ago he could not stand upon his feet, owing to violent choreic movements. He had quinine given freely by the mouth and within twenty-four hours, the movements decreased; he now walks about and is apparently almost well; at least, he has very little left of his chorea. So far as practical results go, it therefore looks as if the theory would stand the test of experience; but whether our present prospect is simply a mirage or not, time alone can tell.

I now bring before you two children suffering with chorea. The first one is seven years of age, and small and poorly developed for her age. The second is ten years of age and appears to be in a better nourished condition; but in the second, the chorea is more marked and of shorter duration than the first, in which, according to the mother, it has existed more or less for four years. I will put both of these patients upon the quinine treatment and will report the result at our next meeting.

ADVANCEMENT OF SURGERY.

A Paper Read before the Vigo County Medical Society, April 1890.

BY JOHN E. LINK, M.D.,
OF TERRE HAUTE, IND.

Why I should have been selected to read a paper to the Society on the "Advancement of Surgery" is incomprehensible to my mind, unless it was for the purpose of inducing me to post myself more thoroughly upon the literature of the subject. Sure it is, that I, probably of all the members, have paid less attention to the serial productions, as published in our overloaded journalism, than any other member here. And I think it is a well understood fact, that I read less of our periodical literature, as well as our secular papers, than any other member of this community. What has stood the test of ten years' popular favor becomes a part of our texts; and compared to-day with what has been introduced as novel and good, not one-tenth part bears the test of the decade. For this reason I have declined to place any of my thoughts or methods into the hands of publishers, and only a few of the things that presented themselves as original, from observation or thought, have found their way into print through the pen of others more ambitious to write. And I say to you to-night that I had far rather have come here before you, presenting a patient with oral explanation, than to attempt to write. It is generally understood that the only way for a man to bring himself into prominence

is to write, but a man's good works live after him in spite of silence. James R. Wood wrote little or nothing, yet his name stands out prominently as an original thinker and tireless worker. And so, if I criticise some of the newly accepted theories and practices, as appear in our medical journals, in surgery, adversely, I hope you will not lay the disappointment you realize in this paper at my door, but to the source—the appointing power.

Taking up the recent text-books of to-day and comparing them with those of the last fifty years, the enthusiastic student of journalistic surgery will surely be surprised, especially in the more common and frequent cases that the surgeon is called upon to treat.

From what I have said it might be inferred that I am a non-believer in progression in our science—in evolution. Such is not the case, I assure you. I believe not only in mind evolution, but in all organic—living, process-evolution—that all things that live a true and healthful life add something to the process of such existence, that for every healthful spear of grass that grows the element that produces it is made richer for the production of others of its kind, providing each has the advantage of improvement. For the advanced speed in training, the possibility of the next horse to improve is greater. Mr. Beecher, in a sermon preached in Plymouth Church, said, as one horse makes a given advanced record on the track, the whole herd comes up to it, and so another and another, attributing it to the will of the trainer. I attribute it to the cultivation of a process in nature—a cultivation of the soil of speed, as it were, and to me, as tangible as the fertilizer of the agriculturist and horticulturist.

I appear, therefore, before you to-night to present in conscientiousness sake my views of what truly constitutes the advancement of surgery, and to protest, in some instances, against what I believe to be the fallacies of, and detrimental to our science and practice. To enable us to overcome the obstacles in our way and to reach our destination, it sometimes becomes necessary, like the school boy, who as an excuse for tardiness, said “the ice was so slick that for every step he made forward he slipped two back,” and when the teacher reminded him that if such had been the case he never would have reached there, said, “Oh, but I turned around and went the other way.” So to-night I ask your indulgence in the experiment of turning back in our efforts to advancement.

The fundamental principle of the practice of surgery and medicine is anatomy and physiology. This, of course, all will admit. The sun, Emerson says, shines in the eye of the man, but into the soul of the child. As we grow older in our science I fear the beauties of the underlying and overarching principles of our profession are overlooked in too many cases, and only the poet, the enthusiast in nature, stops to see, as Emerson again puts it, the “beauty in a corpse.”

I was surprised to notice recently in one of our daily papers the faults and disadvantages of too much newspaper reading. How I should like to see the same good sense and frankness appear in some of our medical journals. I take but one—THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. I think it is to their interest, and that they have the judgment necessary to select from among them all the best. I glance over each number, and at the end of the year

I again run over the index and select and read upon such topics as have presented themselves to my mind as of interest. I do not hold myself, or my methods, up before you as infallible or necessary to success. What one conscientiously believes to be right, one conscientiously desires others to know of and have the privilege of following.

I attended one full, and parts of two courses of lectures, devoting my whole time, outside of listening to didactic teaching, to the dissecting room, and never attended a dozen clinics in the hospital. I loved the study, though hard, that gave me the grounds for future thought and observation in after years of practice, and never, either in my military experiences in hospital or in civil practice, did I allow a winter to pass, for fifteen years, without a careful and thorough dissection of one or more human subjects. I believed then, and can now say that I am convinced, that with a clear insight into the human organism, a sure foundation for reflection and action is laid. I never now feel the least timidity as to myself, and never approach a patient without assurance and sympathy. The engineer who knows, as is often said, every bolt and screw of his engine, not only handles it well but loves it with a tenderness—else how should he have studied it so. And now the greatest regret I have is that opportunity has not made it possible for me, or more easy for me, to have continued my investigations and to have kept my memory fresh in the minutiae of anatomy. One of the first advantages, and consequent advancement in surgery as well as practice, is the facility afforded by our State, and many of the others, in obtaining material for dissection. The new beginner can have the unclaimed dead galore for filling in his leisure hours in improvement, and the gratification of his increasing taste for knowledge. When a thorough knowledge and familiarity with the dead subject is attained, whether in the practice of medicine or of surgery, the practitioner can, with good judgment, approach the sufferer confidently, without undue assurance. Therefore, I have seen fit recently, in the view of too much “antiseptic surgery,” to designate most of my practice, “physiological antiseptic surgery, *versus* germicidal antiseptic surgery.” Antisepsis has its place, I admit, but he who anchors his faith in it alone, or in most part, follows the shadow instead of the substance. What has been done by the leading minds in advancing the theory and careful methodical practice of antiseptic surgery is well: and careful, systematic work and thought is improvement. He who is unusually careful of the little things cannot well neglect the more important. All intelligence, all knowledge on any scientific and practical subject is advancement—is improvement. Anatomy is the great ocean of intelligence upon which the true physician must sail. Bacteriology is but one little harbor—with its present boom. All credit to the men who by days and nights of study, have unearthed the little fellows and made them visible to the eyes of all through the microscope, but pity to him and his patients who sees only through the lens of the microscope, neglecting the greater, seeable with the eye and tangible to the brain. That these microbes are the causes of disease, *per se*, is not proven, and that we should accept them as such, there is no more reason than that the maggot in the dead horse should be held responsible for his death, or that the wiggle-tail in the rain barrel should be

taken as cause for the turbid and generally changed condition of the water. A few years ago it was the popular belief that "bots killed the horse." I remember my first post-mortem. It was in the case of a fine three-year-old, which died after an illness of two or three days. I, then aged about fourteen, followed his remains with sharpened butcher knives to the woods over against the cliff, and made a kind of barn or trap door opening into his belly, where I found the contents of stomach promiscuously distributed. What at first looked like a spider's web, proved to be the shreddy perforated remains of a stomach. At the small remaining swallow, or oesophagal end, I found a mass, probably a pint or more of grubs—a living mass of bots. That settled it: the horse had died of bots. Then next, what will kill them? My father, the hired man, and a number of neighbors, began the experiment, first with lard and turpentine, the accepted treatment for bots. In this they lived and moved and had a being—yes, even in *pure* turpentine. Nothing, as I recollect it, seemed to be instant death, excepting pure nitric acid—that settled them. And so we, in our wisdom, in the ocular appearance of things, decided that for bots there was no cure. Now, need I say, we know all horses in perfect health have living bots in their stomachs, living happily with the horse as their friend, they even, the farrier, may tell you, his benefactors. When disease disturbs the secretion of the glands and they are starving, they take hold of the little glands, eating them for their nourishment, and after death destroy the organ—not before.

That bacteria are the cause of disease to my mind there is no proof. That they are scavengers, I take such data as above, for proof, together with my clinical experience and observation to the contrary, extending over twenty-five years, with at least a part of the time, as good opportunity to observe as any man living. My only sin of omission, punishable in ridicule by an ungenerous profession, is my living in a small city instead of London or New York. Antiseptic surgery, so-called, had its origin in Listerism, which was the carbolic spray, though now we are told that Lister does not now advise the spray, but other methods and appliances. To express myself plainly, in brief, everything that is cleansing is claimed as Listerism. That "cleanliness is next to godliness" I have never heard attributed to him, and yet we all accept it. But knowledge is godliness, and has no better exemplification to me now than in physiological surgery.

In the treatment of simple fracture and dislocation, there has been no marked advancement, excepting in appliances—each having a peculiar method of his own selection, but the text-books give us about the same—in fractural appliances Buck, Hamilton, and others more or less ancient.

Commerce has done much for us in the way of convenience. The rubber bandage, accredited to Esmarch—the rubber drainage tube—but little better than the old tent—which, had it been as universally applied, would have done much good in this line. The enthusiasm of men in advertising these things has caused a more general application of the principle and are an advantage in surgical practice.

The first thing that strikes me in the comparison of the old and new text-books of the last fifty years, is the illustrations; the artist having done a great part, commerce filling in the supply of conveniences;

the rubber coil for cold application to the head, the inhaler for chloroform and ether—largely the devices of Esmarch and a few others, whose names add to their popularity. Esmarch's bloodless operation is an innovation, and worthy of the name of advancement, though taking the place in principle, to some extent, of the old tourniquet. Surely this method of controlling the arteries high up in the extremities, the axillary in shoulder joint operations, the common iliac and abdominal aorta, are a great convenience to the profession, an improvement over the pressure by hand, entrusted to an assistant, as in my early experience.

Abdominal surgery has made wonderful strides in practice since the war; and we can only wonder at the blundering of our former negligence and oversight, the result of a kind of superstition as to sacredness in invasion, rather than any proof to the contrary. Antiseptic surgery too often gets the credit, though McDowell, in his successes, did not know or practice it. And to-day Tait is notorious for his ignoring it, though one of our most successful gynecologists.

But to traumatic surgery I wish to call your attention, more particularly to penetrating wounds of the abdomen. In relation to the thought as to the hinderance in superstition, I wish to call your attention to the unreasonableness of the argument used a few years ago—and even now for all I know—that women bore these operations—abdominal sections—better than men, maybe from the thought of the difference of the pelvic organs, in contradistinction to the higher viscera. I heard this argument advocated three years ago at the meeting of the International Congress, at Washington. I only now wish to say that it is absurd and will not bear the test of clinical experience any further than that woman's resolution often serves her a better part, in trying times, than man's.

If I were asked to name the part in surgical practice the most fully typifying the advancement of the profession, I should unhesitatingly say, the localization of certain centers of cerebrum enabling us to locate pus cavities within the cranial cavity. This is of far more scientific importance, requiring a much more exact knowledge of the part than the abdominal viscera. In the latter, the novice may venture with but a cursory knowledge of anatomy. The antiseptic fad is here barred by necessity of a knowledge of exact science, not coverable by the cloak of ignorant assurance. The ambition of notoriety here stands halt, with cap in hand, doing reverence to the truly learned.

I have held in all my work before medical associations that there is little or no special knowledge of anatomy required to do abdominal surgery; and that promptness in action, in case of injury to the abdominal viscera—requiring surgical interference—was the great desideratum; that the general practitioner should be held responsible for prompt action in opening up the cavity, in cases of penetrating wounds, stopping hæmorrhage and sewing up the perforated bowels; that neither anatomical knowledge or surgical skill is required. The farmer does as much, with impunity and little loss of life, spaying pigs. With a butcher's knife he eviscerates the slaughtered animal, seldom or never cutting a gut. As for the ligating of a fold of mesentery or omentum containing bleeding vessels, one with skill to serve in sewing

a button on his trousers is sufficient. And in the sewing up of a wound in the bowel, the interrupted suture or any other, as well as the continuous, will do the work of preventing leakage, and any material for suture answers the purpose almost as well as the catgut or silk. Nature in her endowment, with resources to meet demands in the exudation of lymph with omentum for patch will cover effectually whip cord, if necessary, and sloughing finds its way in natural process into the cavity of the bowel.

I could cite instances of the remarkable tolerance of the tissues of the peritoneal cavity in wounds, that must have paralyzed the antiseptic surgeon of a few years ago. The case, more or less familiar to us all, of the man who attempted suicide by abdominal section in the pine woods of Michigan, is notable. But time requires that I must hasten, and one instance must suffice. A case in my practice occurred a few years ago of penetrating wound and recovery, where promptness in operating, not antiseptic surgery, saved the life of a little boy of this city. The case, as reported by me, has been published in several medical journals, and can be found in the transactions of the Ninth International Medical Congress, Vol 1, page 543. The central idea involved was, as above, that the surgical section of the Association should teach to operate in all cases of penetrating wounds, immediately.

You will, I hope, pardon me for having dwelt at some length upon the surgery of the cranium and abdomen; and yet much more needs to be said of our advanced knowledge of the tolerance of these parts, especially of the brain. But our recent text-books speak of these. So I will pass to one other subject as coming under my observation since the time of my attending lectures in 1861—the successful accomplishment of the ligation of the arteria innominate. The operation had been performed unsuccessfully by Valentine Mott, and others. Mott had left it as a legacy to the profession that it could be done successfully. Daniel Brainard, of Chicago, declared his faith in the judgment of Mott, and so it proved. In about the year 1863 or 1864, Dr. Smith, of New Orleans, performed the operation with success. The patient entirely recovered and lived for some years, but subsequently dying of disease, a post-mortem examination proved the accuracy of Dr. Smith's work, and the profoundness of an opinion based upon anatomical knowledge.

The processes of repair in the breach of continuity of bone substance was for many years a conjecture, more or less, and up to the time of 1876 and 1877 the theory, pro and con, as to the possibility of reunion in simple fractures without shortening, occupied a considerable part of the time of the deliberations of the Surgical Sections at the meetings of the American Medical Association. It had been long taught that no reformation of bone could obtain in cases of loss of substance where the periosteum was destroyed. I have always held to the contrary. As early as 1861, at the time of my attending lectures under Brainard's teaching, it was held that in the removal of diseased bone there could be new bone formed if the periosteum was saved. I argued that if bone would reform where the original periosteum was conserved, it would also be possible for it to reform without it, basing my opinion upon anatomical data, and I so declared myself at a meeting of the American Medical Association in Chicago, in

1877. It was published as a part of the discussion before the Surgical Section in the *Cincinnati Clinic* for June, I think, of that year. I then stated, and am still convinced of the fact, that bone will reform where the original track of the shaft is kept open, providing the surrounding soft parts are healthy, with regard to their usual blood supply, independent of periosteal conservation. Cell proliferation from the medullary substance will fill the space and calcification will, by natural habit, be supplied by the centering arteries. The periosteum having no osteoplastic rôle specific to its organization, constituted only of blood-vessels and connective tissue. I have removed as much as five inches of the tibia in one instance, and three or four inches in quite a number of cases, where there was no periosteum remaining, and have had perfect union with little, or no, shortening. As to what the opinion is now, or what work has been done in this line in the last ten years, I am not informed. I think antiseptic surgery has so completely absorbed the minds of surgeons and occupied the time of the deliberations of societies, that there has been no recent advanced thought in this most practical branch. Bone grafting held a prominent place in the favor of our journalistic literature a few years ago, but it has never had the backing of anatomical or physiological reason nor practical sense. As no notice appears, to my knowledge, in our recent text-books, I infer that it has been relegated to the antiquities of sheer nonsense and buncombe. Of skin grafting, I am happy to be able to testify to its physiological claims and practicable application. I have had some charming results, and observed others in the practice of other surgeons, that leave no doubt as to its having become a part of our practical business, in the great work of alleviating suffering and correcting deformities: and it is of recent date, having had its birth and growth within the time of my experience in practice.

Among the notable failures and absurdities, in claims to originality and advancement, I will call your attention to the hazardous practice of opening the knee joint and wiring the fragments of the patella. This was, I well remember, advertised as one of the triumphs of antiseptic surgery but a few years ago. It is an operation uncalled for and hazardous in the extreme, and universally I think, as it should be, discarded.

For the purpose of reaching the true Mecca of learning, let us turn back upon the slippery way for a little while, to look upon one of the oldest means, by far too little understood, even by those who practice it in surgery—bandaging. What does that practice involve as it is done in this day of antiseptic surgery—so-called? How many physicians recognize it as one of, if not the very most potent, means of antiseptic precautions and remedies? Has it ever been taught by the fathers and promoters of antiseptic surgery that it was the greatest of "microbe-killers" on earth? And yet I stand before you to-night to bear earnest and truthful testimony, that never in a four years' army surgical experience—a greater part of the time in hospital wards, where erysipelas was of common occurrence in gunshot wounds—never have I seen a case occur beneath a carefully applied bandage—a physiologically applied bandage—the bandage of even and easy support. And more than this, I have applied the roller bandage in many—in all—cases, when applicable, that I have

treated, both in military and civil practice, since 1863, and never saw a case resist such treatment for three days. The redness and swelling of the part subsides, and the patient's general condition improves, from the very first application. And therefore, from the antiseptic surgeon's standpoint, the roller bandage must necessarily be a microbe preventer and killer, worthy of no small amount of consideration. Dr. Dudley was probably the greatest advocate and most successful applier of the roller bandage. It has been said, though, of his students, that they did much harm. This was their fault, but no detractor from the principle involved.

Of all the appliances and devices in surgery the bandage is the most potent, and if I were reduced to the extremity of giving up all others or it, I should unhesitatingly select the bandage alone. With it I can give perfect anatomical adjustment in fractures of the extremities, and physiological rest to diseased structures; not only of the extremities, but of the abdomen and chest. Even in pneumonia the most charming results have been obtained in my practice; and in gunshot penetrating wounds of the lungs, life and comfort at once have come back to the sufferer. I have seen the rigid muscles of the face, expressive of pain, gradually relax as layer after layer was laid gently around the chest; and the patient, grateful for the sweet comfort of relief, would say, "Doctor, I feel so much better," and gently fall asleep, with rapid recovery. As to the answer of my belief here in the bacteria theory—"you must read your answer in the stars." There are no humbugs there.

I will call your attention to the repair of lost structure, the healing of wounds, for the most part open wounds. Union by the first intention, requires no discussion here, as the process is unattended by any pathological process, and the question as to antiseptic treatment is not involved. To typify the healing process with necessary treatment in one class of cases, I think, will be sufficient for them all.

Early in 1863 I began the treatment of stumps openly. After the limb had been amputated by the circular method, in the usual way, I bandage well down to the edge of the wound, in such a way as to give perfect support to all the tissues involved in the trauma, extending the bandage up on to the limb, so as to embrace all the muscles involved in the cut; thus giving uniform support and quiet to the tissues. This is rest without restraint, which absolutely fulfils all the indications in physiological surgery. Within from five to ten days the slough, consisting of blood and clot, wounded tissue from the knife, etc., is thrown off, and healthy granulations obtain. For the first few hours there is a free discharge of bloody serum; then a small quantity of pus, just sufficient to flood off the foreign substance. From this time on, there is absolutely no pus discharge, providing—as I am able to do—no dressing other than water comes in contact with the wound. I say no other than water: I do sometimes use a slightly stimulating wash consisting of nitric acid, one drachm to the quart of rain, or other distilled water. The hollow, cone-shaped wound enables me to do this easily by merely throwing a damp cloth over the mouth of the wound. Here is a brief description of what I know to be a novel method of procedure. What seems the most startling to the profession, I claim there is absolutely no pain, no discharge, during the healing, and that these stumps usually close by

the process of granulation in two or three weeks, leaving only a small centrally depressed cicatrix, not larger than a five cent silver piece. Of over three hundred amputations so treated, not one has died from secondary causes. The bandage is seldom changed from the time of the operation and first dressing until the wound is healed. Others are applied over the first, so as to keep up the uniform support necessary in the contraction from shrinkage of the stump. This principle of permanent, undisturbed dressing, is as old as Larrey's practice. What is novel is the detail, I may say. The same processes and treatment are involved in the treatment of compound fractures, with loss of bone substance. The limb is maintained in its normal length, the track of the bone shaft left open to fill in by granulation.

Now can any of you see in this treatment Listerism? I have been told that the absolute drainage and consequent cleanliness of these open wounds is antiseptic surgery. This, truly, is evident from the results obtained. But is it Listerism—I being its originator? Frank Hamilton said to me that he told Lister that "we have a surgeon in Indiana whose wounds are antiseptic in their nature." At a meeting of the American Medical Association in Chicago in 1877 he (Hamilton) was acting as chairman of the Surgical Section, and after I had presented the case of a little negro boy, whose leg I had amputated five weeks before, bore testimony to having seen my cases in the army, and he stated that he had tested my method in Bellevue Hospital, and admitted that he was unable to account for the wonderful results.

Dr. Moore, of Rochester, says in an article read before the Section of Surgery, in the American Medical Association at a meeting in 1878, and published in the Transactions, entitled, "Prophylaxis of Septicæmia in Surgery": "This principle of outflow seems to me to be the explanation of the excellent results of the method of Prof. Link, of Indiana. The stump is the end of the limb, and the compression not only keeps the muscles quiet, but procures a constant outflow, and arrests septicæmia by arresting endosmosis. I have always employed his method since I heard his admirable paper at Louisville."

Again, in an address on surgery entitled, "A Sketch of the Progress of Surgery," delivered in the Section of Surgery in 1888, he says:

"Surgeons at different periods changed their methods, and open wounds were proclaimed as far more successful than those that were closed. But the term "open wound," as generally employed, is a misnomer. The wounded surfaces, it is true, are not pressed into contact, and provision is made for the drainage of the purulent matter, but these surfaces were still more or less in contact with each other. I do not hesitate to say that one of our own members, who made the first declaration of his method in the Surgical Section of this Association, has placed the question of the management of open wounds upon a perfect basis. It has usually been my custom to employ it since its announcement, and never with regret. There have been no failures, and little or no constitutional disturbances. I refer to Prof. Link's method, by which the bandage restraining the swelling causes the edge of the wound, which should be circular, to rise like an erectile tissue and stand up open to the air, thus making the only genuine air dressing that I know of."

I have never conceived for one moment that these

wounds with their soiled dressings were free from bacteria; believing, as I have from the first, that these microbes are only scavengers and common, or liable to exist, in all cases of death, decomposition and degeneracy of tissue. Consequently, I sent a sample of such bandages, removed from a compound fracture of the leg, of six weeks' standing, to Dr. Marcy, of Boston, for examination. The specimen was removed and at once placed in sealed bottles, some dry, others in alcohol and glycerine. The doctor wrote me—and I have the letter now before me—"These dressings literally swarm with bacteria."

The patient, Mr. Johnson, of Otter Creek township, suffered a compound fracture of the leg, middle and lower thirds, with the loss of the shaft of the tibia of $3\frac{1}{2}$ inches. I dressed the wound, or limb, with bandages stayed with the shavings used in packing buckets and tubs for shipping. The wound was left open. Whisky dressing and hot water was the treatment from first to last. In fourteen weeks the wound had closed entirely and bony union obtained with little or no shortening. No unfavorable symptoms of septic poisoning or traumatic fever supervened. Yet, as Dr. Marcy reports, bacteria literally swarmed around the wound in the dressings. Is this the cleanliness of Listerism—the outpouring of Dr. Moore—or is it the physiological treatment of support, making the conditions antagonistic to diseased action—the shutting out of disease? As in the case of erysipelas, did the bandage act as a germicide?

The contagion of germicidal pathology, I think, reached its climax when the fellow (I do not remember his name or where I saw an account of it) claimed in an article published in one of our journals, that "where the skin is not broken, and diseased action of a septic character is taken on, the germs must necessarily have gotten in at the back door, as it were." Yet it seems that, where the physiological indications of support are met, the "germs" stay out, though the front door is left open.

In the early stages of the wound Dr. Moore's reasoning might hold good, as to the flooding off by the serous discharge, but in a little while, and before the slough is removed or any pus formed, there is no such outpouring; the wound is comparatively dry excepting as moistened from time to time by the damp cloth, or water that may be poured over it.

Dr. Moore said that my showing that wounds, so treated, do not discharge pus, completely revolutionizes former ideas as to the healing process. Looking into one of those rapidly healing wounds with its masses of granulation processes, rolling together like scrolls; cicatrization so rapid that the surface shrinks to nothing in a few days; one notices first, within a few hours after injury, the swelling out of medullary substance, like new granulation tissue—as Virchow claims it is—bone tissue held in reserve; then following in a few days the soft parts exterior to the bone; the whole blending, presents a pinkish hue, more or less variegated in tinting like a rose bud: at places almost blood red; the new vessels easily discernible through the thin film of covering with an ordinary lense. One sees at once what Virchow, Cohnheim, Billroth and their contemporaries have taught of the identity of white corpuscle—the final cell—and their identity with the pus corpuscle; and in the cultivated mind's eye, easily learned by the every day student in what he may see through the lense of a microscope, in the web of a frog's foot, or the bat's

wing—like diligent workers climbing the ladder to the top of the wall, or, like busy ants repairing the breach in their home—come crowding upon each other through the delicate avenues of capillary new formation, the white cell to be laid like the brick in the wall, with mortar; cells and inter-cellular substance, all dumped to the great builder, Nature; each selected to its part. The white blood corpuscle making new tissue, rapidly coming in excess, not needed here, in pus, as ordinarily in the battle of fighting some offending substance, lays itself into the wall in repair, locking firmly in each other's embrace: they form new tissue, contracting as they solidify into the connective. This process being even, the surface contracts alike: not only puckering the edge of the skin towards the bone, but depressing the center, leaving the cicatrix well embanked around with original skin. We can have no tender stumps.

The thought that lies nearest all this is the part taken by the bandage—the only seemingly universal auxiliary, as all other treatment is incident to necessities as they may arise. First the stiffening of the skin covering: second, rest, as above; third, the uniform pressure that it exerts upon every vessel of the pathological tissue, preventing blood stasis (and venous absorption)—no swelling—no pain. The swelling is the result of congestion and exudate; pain of inflammation, the result of nerve tension or stretching in the tissues from swelling. The pressure exerted by the bandage, together with the free exit of serum, prevents congestion and infiltration. Later comes the other stage: inflammation cut short by other conditions, and only obtaining, in so far as a kind of inflammation process is necessary to the healing of the wound, not necessarily sufficient to result in suppuration. In these cases the white blood corpuscles are not called upon to act as pus to flood off the offending substance and are, therefore, utilized as tissue makers.

The ultimatum of surgery is not in the size of the Catlin knife, or the sharpness of the scalpel in dexterous fingers. The transcendentalism of surgical science is the footing on the pinnacle of the spire, that has its foundation in bone, nerve and artery, finished in capillary cells, molecule and protoplasm; the skilled hand and trained mind reaching out into the infinite of these materialisms.

In conclusion upon this subject, I wish to say that the roller bandage, slightly enforced, meets all the indications in the treatment of fractures of the extremities; putting the muscle to sleep, as it were; with flexion of the lower extremities, the limb rotated outward and laid level upon the bed: we have a perfect adjustment of the bone, with no spasms of the muscles or tendency to displacement: the patient rests easy and comfortable, bacteriology to the contrary notwithstanding.

The rubber bandage, as usurped by Martin, on its elaboration to the use of treatment of varicose veins and synovitis, is a little better than none, and only advantageous to the laity in its easy application by them.

The flannel bandage meets the true scientific requirements of physiological action, and is to be much preferred by the skilled in the use of scientific means for the relief of all chronic troubles.

It is a common principle in nature to resist any obstacles to its tendencies, even unhealthy ones. Apply the bandage for the above chronic condition.

and the first effect is irritation and a tendency to increased congestion. But nature, finding the environments unsurmountable, takes the only remaining course for relief; diminished congestion, and absorption, obtain, until the shrinkage leaves the parts loose and free. Consequently the rubber bandage is wrong, and Martin admitted that in arthritis it should not be used. Nature here finds no point of rest in the following up of the pressure of the elastic bandage; the irritation is continuous. But with the fixed bandage of flannel or old, well worn domestic, it is different. The thought that suggests itself to the "thinking"—which we seldom do until the necessity to account for facts pushes us to it—that the more seldom the dressings are changed the more rapid the recovery. So Larrey taught nearly a hundred years ago, and we, to-day, are forced to go back and admit a homicide and burial of one of our nearest and dearest, though commonplace friends, in the neglect in ambition of seeking the mysterious. Thus we are constantly stumbling over practical things lying around and near us in the blindness of egotistical-far-seeing-ambition. There is no more notable instance of this, than in the case of chloroform and sulphuric ether as anæsthetics, so called. Alcohol is to-day their superior, having this true principle more fully marked, as its very first effect is anæsthetic when given in large doses, and it meets all the practical necessities in far the greater proportion of capital operations, as I have frequently demonstrated.

Anæsthesia can be produced by the rapid administration of whiskey in less than one hour, and with far less general physiological disturbance than by chloroform or ether. The most serious disturbance is that probably of congestion or hyperæmia of the medulla oblongata; and this is counteracted by the loss of blood, mental impression and nerve shock incidental to all surgical operations. Whilst whiskey increases the blood supply to the base of the brain, chloroform diminishes it. The two used in conjunction—the one by the mouth, the other by inhalation—act in harmony anæsthetically; the one counteracting the unhealthy or dangerous tendency of the other, they should be used jointly. But with choice between the two—the one to the exclusion of the other—I should unhesitatingly select alcohol, as I am convinced that anæsthesia can be made complete, with less than one tenth part the death rate of volatile anæsthesia.

Therefore, I am in the habit of administering frequent doses of whiskey followed by small quantities of chloroform. A few inspirations is sufficient to quiet the patient. After which a prolonged operation can be practiced, the physiological conditions remaining through the severe trials of a capital operation nearly, to all appearances, normal. The florid or normal color of the surface, especially the countenance, respiration, heart-beat, pulse-wave, all leading to a feeling of assurance of minimum danger from anæsthetic causes.

LATER—November, 1892.—H. C. Wood's tests as reported to the Int. Med. Congress at Berlin, 1890, were correctly made and deduction proper. But the administration of alcohol hypodermically after profound anæsthesia by chloroform with failure to reinstate is liable to be misleading. Alcohol will prevent, under its primary influence, shock, mental depression and collapse, but will not restore from them, if at all profound.

SPECIFICS FOR THE CURE OF INEBRIETY.

BY T. D. CROTHERS, M.D.,

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When any great truth begins to receive public recognition it is always first welcomed by the credulous and visionary enthusiast, who surrounds it with the most extravagant expectations. This brings out the charlatan and empiric who studies to turn all such facts and conditions to his own personal profit. In this way the credulity of the one and the charlatanism of the other envelop the truth with a confusion and mystery that often conceal it for a long time. Only the student and the scientist realize that behind this glamor and illusion there is a uniform evolutionary movement along different lines from that suggested to the popular mind.

The growth of the truth is through separate periods and stages. The first stage is that of indifference, neglect, and denial. Then follows the credulous period, in which the truth is partially recognized and accepted, with extravagant conceptions, associated with wild empirical efforts to incorporate it into practical life. Finally, it is fully understood, studied, and accepted, and becomes a part of the world's great possessions. This is the natural history of every new fact of science and every new discovery concerning the evolution of humanity. Often these stages extend over long periods of time and are unrecognized except by a few persons; or they follow each other rapidly, but always along the same lines.

The dawning truth that the drink evil is a disease, and curable as other diseases are, has passed the first period of neglect, indifference, and denial, and has come to the second stage of partial recognition and acceptance. The same army of the credulous, the enthusiasts, and marvel-hunters are welcoming this fact, and the same wild expectations of its practical possibilities fill the air. This is followed by the same old charlatanism and empiric efforts to make personal profit out of these truths by the use of the same old quackish means and methods.

These efforts are prominent by the same assumption of superior knowledge of discovery of new facts, of new remedies, and new methods, all of which are concealed. Then follow claims of extraordinary cures under extraordinary conditions, the proof of which depends alone on the statements of the cured.

Then comes the old story of persecution by physicians and scientists, and of posing as martyrs, public benefactors, and pioneer discoverers, with indirect appeals for sympathy from the broad and liberal minded. Back of all this is a pecuniary field actively tilled which yields rich harvests, and altogether it is the same old familiar history of empiricism, which is always to be found on the advancing frontiers of science. Within two years a large number of charlatans have appeared, claiming to have found remedies and specifics for the certain and permanent cure of the drink disease. A great variety of means and drugs are offered, each one claiming to be superior to all others. Recently one of these empiric specific cures has led all the others in boldness and prominence. Starting from an obscure Western village, it has spread out into many branches, all organized and conducted on one general plan, and federated together. Physicians have been enlisted to conduct each branch, companies have been organized, houses hired, and elaborated arrangements

made for the work. Special papers have been established to defend its interests, and the pulpit and press have indorsed and freely praised these efforts. Every possible avenue to attract public attention has been industriously cultivated to keep the subject before the people.

Large numbers of persons who claim to be cured have organized into clubs, and display hysterical enthusiasm to prove the reality of their cure and the greatness of the projector.

It is assumed that the inventor of this specific was the first to urge the theory of disease in modern times; also that he has made a great discovery of a new remedy the nature of which he carefully conceals from the rest of the world. The most wonderful and complete cures of the most incurable cases are accomplished in two or three weeks on some unknown physiological principle. These assertions are sustained by certificates of clergymen, reformed men, and others, and are accepted as facts without question or other evidence. Dogmatic statements and bold assertions, coupled with savage criticism of those who dare to doubt, together with half-truths and wild theories, mark all the literature of this specific. The commercial side of this remedy is equally startling and Napoleonic as a business success. It is a curious fact that this particular cure is very closely followed in all its details and claims by a number of imitators, who have made equally wonderful discoveries in precisely the same way, but all are concealed for the same pretended reasons. It is equally curious to note the absence of novelty and originality of methods compared with the means and efforts used to make popular and create a sale for most of the proprietary articles on the market to-day. All these specifics for the cure of inebriety are without any practical interest except as phases of the psychology of the drink disease. It is very evident that they could not attract attention on their merits, and the means and appliances used to bring them into notice. Their existence depends on a psychological subsoil, which would favor the growth and culture of any remedy involved in mystery, and promising marvelous cures in a brief time. This subsoil is simply the expectant credulity of a large number of persons, who recognize the possibility of disease in inebriety. Without this all specifics, no matter how wisely and shrewdly presented, would fail. The conditions are all ripe for such empiricism, and its growth, life, and death are governed by causes unknown to and beyond the control of its boastful authors.

Every temperance revival movement depends on some psychological subsoil of expectant credulity, and is followed by the same dogmatic empiricism and the same wonderful cures, and, hysterical confidence of permanent results. Certificates of cure, and enthusiastic praise of means and methods of far greater magnitude than that which follows any specifics, could be gathered and noted after every temperance revival.

The specific cures of inebriety to-day have appeared many times before in the history of the past. Often the empiricism associated with it has been entirely moral and ethical, and at other times it has been pecuniary and selfish. The old Washingtonian movement was a good illustration of a great specific cure, bound up with a great tide of moral empiricism, which for years created intense interest.

The presidential campaign of 1840 was notorious for the excessive use of hard cider, whisky, and rum. Every political meeting was marked by the free use of these spirits, and as the excitement of the struggle increased, temperance men drank, moderate drinkers became drunk and delirious, and never before or since has the excitement of politics been so intimately associated with inebriety in all its forms.

At the close of the campaign it was estimated that over half a million voters were practically inebriates, or had been repeatedly intoxicated during the excitement and excesses of the campaign.

Newspapers and court records showed clearly that a high tidal wave of drunkenness and moderate drinking existed at that period. Then followed the inevitable reaction, and at this moment the Washingtonians appeared. A few months before, a small drinking club in Baltimore changed to a temperance society, and called themselves Washingtonians. Its members were reformed men, and its leader, John Hawkins, was an enthusiastic, passionate orator, who urged the pledge as a remedy for drunkenness with intense earnestness. The excitement of the political campaign and its drink excesses had prepared the public mind for this great emotional remedy—the pledge. John Hawkins' infectious earnestness animated his followers, and roused up an army of lecturers which scattered to every town and hamlet all over the country. The campaign excitement of 1840 appeared again in a great temperance reform wave, which steadily grew in number and enthusiasm up to 1847, when a high tidal point was reached and reaction begun. Over a million persons signed the pledge, and the evils of drinking and alcohol were discussed in almost every neighborhood in the country. Never before had any reform movement been prosecuted with such terrible earnestness and contagious enthusiasm. All selfish motives and personal interests seemed to disappear in the one great purpose to pledge the victim and inspire him to avoid spirits and lead a temperate life. The spirit of the old crusaders seemed to have reappeared again. This was literally a psychological storm-wave, the reaction in part of the campaign of 1840, and the outgrowth of obscure psychological conditions, which had been prepared for a long time before. It crossed the continent and was felt everywhere, and a few years later was only known in the history of the past. While a number of inebriates were restored, its real work and value were in a different direction, not yet fully realized. It seemed to be a great force that fused and mobilized a tide of oncoming truth, and was literally a forerunner, indicating new and clearer conceptions of inebriety. It not only broke up old theories, but opened up new ranges of work, and gave glimpses of more effectual methods for cure.

The first inebriate asylum in the world grew out of this movement, and all the various temperance organizations date from the same source. Even the Prohibition party is the outgrowth of this reform-wave.

It was the first great psychological evolution of the drink question, giving an impetus and inspiration to its study, above all moral and political considerations. It was also a great empirical epidemic which assumed that the drink evil was the result of a feeble will, the remedy for which was the pledge, supported by personal sympathy in organized societies

It was a moral and ethical empiricism, based on the purest and highest motives; had it been founded on truth, would have lived as a great power in the upward movement of the race. In this connection it will be of interest to trace another great wave of empiricism, that created interest for a time. Unlike the Washingtonians, it was thoroughly mercenary, and, like the present specifics for inebriety, it was born in mystery and sustained by credulity and dogmatism.

The experiments of Galvani in 1785, attracted great attention. The most extravagant expectation of the practical galvanism in curing disease may gradually spread among non-experts all over the scientific world. Various empiries appeared claiming remarkable results based on this new force. Finally, in 1796, Dr. Perkins, of Connecticut, announced that he had discovered two metals which, combined in a secret way, possessed marvelous powers of galvanism, which he called tractors, or pullers-out of disease. These tractors resembled a piece of gold and silver fitted together, about four inches long, and were used by being moved up and down over the part affected, to draw out the disease and restore the vital forces. Almost every disorder known was cured or relieved by this means. The discoverer challenged the world of science everywhere, and invited criticism, and pointed to the persons cured for irrefutable evidence. The psychological soil was prepared, and the army of credulous enthusiasts were all ready to welcome him. In two years these tractors attained great popularity in this country. They were literally recommended and indorsed by the faculties of the three medical colleges, and vast numbers of clergymen, members of Congress, and public officials. A special patent was issued, and signed by George Washington, as a slight token of the great service the inventor had rendered the world. Pamphlets, sermons, lectures, papers, and even books were written and scattered everywhere, giving the theories and results following the use of these tractors. In 1798 Perkins went to London. His boldness and dogmatism immediately commanded popularity. After a time a hospital was established, called the Perkinson Institute, offered by the nobility, with Lord Revois as president. Large sums of money were given for the treatment of the poor by this method. Free dispensaries were opened, and trained assistants used these tractors for all cases, with boasted success. Lectures were given on the philosophy of this method, and students were instructed and sent out to open branch institutes. The rich purchased these tractors and became their own doctors, and the poor were obliged to accept treatment from others. With empiric shrewdness, certificates of cure were gathered, which exceeded ten thousand in number, and were signed by princes, ministers of state, bishops, clergymen, professors, physicians, and wealthy laymen. The inventor was recognized as a great public benefactor and pioneer, also one of the few mortals who would live down the ages. Perkinsism seemed to have won a place in the scientific history of the world. By and by this gilded cloud of popularity burst, and the charm was dissolved. Two physicians made tractors of wood and sold them as the original, producing the same results and the same crop of certificates of cure. After making a respectable sum of money, they published their experience, together with the thanks and public prayers for the great

blessing conferred on the world by these means. Like the "South Sea bubble," Perkinsism dissolved and was no more. The branch institutes for treatment by the tractors closed for want of patients, and the tractors disappeared. Behind all this tremendous enthusiasm for the good of science and humanity appeared a commercial spirit that was startling.

These tractors were claimed to be gold and silver, and sold at from ten to twenty dollars each. In reality they were made of brass and polished steel, at a cost of about twelve cents each, in an obscure Connecticut village, from which they were shipped to the inventor, who sent them all over the world. Of course, Perkins made a fortune, which compensated in a measure for his sudden fall from greatness.

While this was a great empirical epidemic with a mercenary object, based on a few half-defined truths, it materially furthered the growth and evolution of this subject. Many of the wild theories which gathered about Perkinsism suggested clearer conceptions to later observers. Like the specific inebriety epidemic, it began as an assumed discovery of some new power, claimed from metal (not used), with some new physiological action by some new process, enveloped in mystery and only known to the discoverer. The tractors were patented, and only made by Perkins, and the certificates and statements of those cured furnished all the evidence. Literally, the effects were entirely mental, depending on the credulity and expectancy of those who claimed to be helped.

The present epidemic wave for the cure of inebriety is hardly up to the average of former empiric efforts in adroit manipulation of the credulous public.

The successful charlatan of modern times has always exhibited some psychological skill in the display of assumed truth and the concealment of his real motives. In these inebriety cures there is a coarseness of methods, with brazen assumptions and display of pecuniary motives, that quickly repel all except the unthinking. The circulars, statements, and appeals to the public are overdone, and sadly lacking in psychological skill. A certain crankiness, with strange combinations of rashness and caution, stupidity and cunning, suggests that inebriate intellects are the guiding spirits in the management of these cures.

On the other hand, the very spirit and hurry of the movement suggests a full recognition of the brevity of the work and the need of active labor before the "night cometh when no man can work." In this the highest commercial and psychological skill appears. Dependence for popularity of the cure on the emotional enthusiasm of reformed inebriates also suggests a short life and early oblivion, of which every temperance and church movement for this end furnishes many illustrations.

There can be no doubt of the fact that a certain number of inebriates are restored by each and all these various methods of cure, and a certain other number, always in the great majority, are made worse and more incurable and degenerate by the failure of such means. But, above the mere curing of a certain number of cases, a great psychological movement is stimulated, and a wider conception of the evil follows of permanent value. The inebriety specifics are epidemics of empiricism that will pass away soon, but they will rouse public sentiment and

bring out the facts more prominently as to the disease of inebriety and its curability. This second stage of this truth resembles the "squatter period" of every new Territory—a stage of occupation by squatters, fortune-hunters, and irregulars of every description, who rouse great expectations, build canvass towns, making a show of permanent settlement, and attract crowds of credulous followers, only to prey on them. These persons disappear when the real settlers come. They never develop any lands or discover any new resources, but prepare the way and concentrate public attention for the final occupation. The specific vaunter of to-day is the squatter settler, who will soon disappear, and be followed by the real settler and the scientists.

Inebriety, its causes and possible remedies, are a vast, unknown territory, the boundary lines of which have been scarcely crossed. The facts are so numerous and complex, and governed by conditions that are so largely unknown, that dogmatism is ignorance and positive assertions childishness.

The recognition of disease is only recently confirmed by the accumulation of scientific facts, although asserted and defended for a thousand years as a theory. The realm of causation is still invested with moral theories, and moral remedies have been used in the same way for a thousand years. While science has pointed out a few facts and possible laws of causation, and indicated certain general lines of treatment, it gives no support to the possibility of any specific remedy that will act on an unknown condition in some unknown way. Inebriety is literally an insanity of the border-line type, and a general condition of central brain defect, unknown, and clearly beyond the power of any combination of drugs. To the scientists, all this confusion of theory and empiricism hides the real movement, and is in itself unmistakable evidence that somewhere in the future the entire subject will be known, not as a statement or theory, but as scientific truths established on scientific evidence beyond all doubt.

The specific epidemic delusions for the cure of inebriety will quickly disappear, as others have done before, and its real value to science and the world will appear from future psychological studies.

ALCOHOLIC INSANITY AS ILLUSTRATED BY THE CASE OF JOHN REDMOND.

Read before the Chicago Academy of Medicine, October, 1892.

BY HAROLD N. MOYER, M.D.,

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An etiological classification of insanity has proved quite as fallacious as in other departments of medicine. While at first it appeals to the reason as an admirable means of dividing diseases, and as often giving a hint of their chief indications for treatment, in actual practice it results in grouping together incongruous and widely separated conditions. It is needless to refer at this time to the contentions and useless polemicalizing that has been indulged in the discussion of disorders laboring under an etiological terminology. We need mention but one, spinal concussion. The same difficulty attaches to the term alcoholic insanity; by some it is used to denote any mental change due to alcohol, by others it is restricted to the more permanent mental states resulting from the prolonged ingestion of alcohol. In the same loose

manner various other terms have been employed to designate different phases of the effects of alcohol upon the brain, such as acute alcoholism, delirium tremens, chronic alcoholism, mania à potu, dipsomania, etc. While these terms are descriptive of fairly well marked clinical groups, yet they have been so carelessly applied by medical writers that it is impossible in many cases to accurately define them.

Leaving out of consideration the more evanescent effect of acute alcoholic intoxication, we begin the study of the action of the prolonged ingestion of alcohol upon the mind. It is apparent from even superficial observation that the chronic inebriate is in an abnormal mental condition. If the grosser phenomena of insanity, such as delusion and hallucination, are not present, there is the enfeeblement of the will, impairment of memory, perversion of the moral sense and a general letting down of the mental tone. This condition is, however, not insanity in the strict sense of the term. In this mental condition of the inebriate, which is but an expression of the nutritional disturbance in the brain, and in which all the other organs share, we have a fruitful field for the development of the psychoses. It is to be remembered that alcohol may stand as a predisposing or exciting factor in the development of several forms of insanity. Thus it may initiate an attack of melancholia or mania, and the course, duration and termination of these disorders will not be different from that observed in cases presenting the most diverse etiology. These should not be classed under the head of alcoholic insanity. The importance of alcohol in the production of parietic dementia is admitted by all, and yet the clinical history and termination of these cases is not different from those in which there was entire freedom from the alcohol habit.

It will be seen from the foregoing that many, perhaps the majority, of all patients tracing their derangement to the misuse of spirits, do not suffer from alcoholic insanity. It may well be asked wherein is the justification of the term. Is there a well marked psychosis having its origin in the prolonged use of alcohol that can be clinically differentiated from other groups, and presenting sufficiently marked characteristics to enable us to affirm a probable alcoholic etiology in cases where the previous history is unknown? This question can, we think, be answered affirmatively.

As Spitzka so aptly puts it, the phenomena of alcoholic insanity develop upon the peculiar mental condition of the inebriate, much as hysterical and epileptic insanity is superadded to the mental conditions always found in these neuroses. The early stages of alcoholic insanity are marked by hallucinations, generally of vision, in this we note a close resemblance to the acute alcoholic delirium. These aberrations in the sensory sphere soon give rise to persecutory delusions of a fixed character. They usually relate to the sexual organs, the sexual relations and to poisoning. So constant is this association of delusions in this form of insanity that Spitzka says where this relation is found it comes as near demonstrating the existence of alcoholic insanity as any one group of symptoms in mental pathology can prove anything. Alcoholic insanity has a closer resemblance to paranoia or monomania than to any other psychosis, as is shown by the chronic and persistent

nature of the trouble, the fixedness of the delusions, their persecutory character and absence of emotional disturbance. The resemblance of paranoia and alcoholic insanity is clinical only and relates to the more apparent symptoms; pathologically it is closely allied to parietic dementia as essentially a degenerating psychosis. While the delusions are fixed they are not logically supported as in paranoia, they lack the systematized and organized quality found in the latter disease. Krafft-Ebing pointed out that the delusions of alcoholic insanity take their origin in preëxisting hallucinations while in paranoia this is never the case. Another differential point that we have noted in our cases is that the paranoiac correlates the hallucination with his delusions. That is the delusion furnishes an explanation for the hallucination. This we think is the foundation of the fact noted by Spitzka that the acts of insane inebriates are not consistently regulated by their delusions. The emotions are but little involved. What there is is usually shown by depression that can be readily explained by the distressing hallucinations and delusions of persecution. The prognosis is always grave, the patients even when confined in an asylum and denied all alcohol, invariably progressing toward dementia, that does not differ from the terminal states of other psychoses.

With these preliminary considerations we will pass directly to a consideration of the case of John Redmond. He was admitted to the Eastern Insane Hospital Jan. 11, 1889. The history which accompanied him at that time stated that he was 35 years old and that there was no special neurotic heredity, that his mother had lived to be 70 and his father 85 years of age. That he had used alcohol and tobacco excessively for the past two years, ever since the abduction of one of his children. There is evidence to the effect that he had been a free user of liquor long before the time named in this history. The duration of the disease was given as six months. It was first shown by irritability which soon passed to delusions of persecution, marital infidelity and poisoning. He was said in the commitment to be homicidal and that he carried a revolver, on one occasion firing through the floor. On January 17, it is noted that he was improving though his face was flushed and he was easily excited, particularly when discussing the subject of his detention in the hospital, which he regarded as unjust and as belonging to the same class of persecution to which he had been subjected at home, when tricks had been played on him with telephones, and by suspending his bed with ropes and swinging it around rapidly. February 1, he conducted himself rationally though his earlier delusions persisted. February 8, he was sent home with an attendant for a day. April 30, he was discharged improved though it was noted that his delusions, while less insistent, were still present. After his return he resumed to some extent his drinking habits, with the effect of accentuating his delusions though it is not certain that at any time he was as bad as when he was sent to the asylum.

One day he sent a message for Dr. F. M. Wilder, who had been his family physician, to call and see one of his children; he met the doctor at the door, fired several shots at him, killing him instantly. Some months after this, just preceding his trial, the writer examined Redmond in the county jail. At that time he was in fair physical condition, conver-

sation was coherent, and on most topics there did not seem to be any special impairment of the mental faculties. Serious lacunæ were noted in the memory. There was decided uncertainty in the movements the hands which at times would suggest tremor. As soon as the killing and his marital relations was broached he immediately became excited, walked nervously up and down the room, and started in with a tirade of abuse against Dr. Wilder, stating that the doctor had attempted to destroy his home and debauch his wife. That on one occasion Wilder had given him medicine that had caused his head to burst open, and more than a quart of water ran out. While he was in this condition the doctor attempted to persuade Mrs. Redmond to retire alone with him to an adjoining room, saying "do not stay with this dead man," or "he will soon be dead, let him alone."

It will be seen from the foregoing history that Redmond was continuously insane from about July, 1888, to the time of his trial, a period of four years. During all that time he had persistent delusions of persecution, of marital infidelity and of poisoning, and that these directly related to Dr. Wilder. They were sufficient to establish clearly the diagnosis of alcoholic insanity.

The jury brought in a verdict of guilty and fixed the penalty at imprisonment for life.

The law regarding the relation of alcoholism to crime is by no means fixed. In a general way it may be stated that drunkenness is not considered as an excuse for crime, and that intoxication cannot be pleaded in mitigation of punishment, excepting in those cases in which the degree of the crime is affected by motive. In the cases where the crime is committed while the accused is laboring under delirium tremens, or the more evanescent mental disturbances of acute alcoholism, it is held that he is responsible and punishable. It is manifest that under such a rule the intoxication is punished, and not the crime for which the person is upon trial. A third condition which is almost universally admitted to absolve from responsibility is when the chronic ingestion of alcohol has resulted in the development of insanity of a permanent type. These cases are to be judged the same as insanity having its origin in other causes, than the abuse of alcohol. It is apparent that Redmond comes under this latter class. The theory adopted by the prosecution and supported by expert testimony was that he had so far recovered that he was able to abstain from the use of liquor, and so the crime being the outgrowth of an acute intoxication, would come under the second class. This view does not appear tenable to us as it leaves out the dominating effect of chronic mental disease and assumes on the part of these patients a degree of self control, often not possessed by persons unaffected by mental disease. Such a partial view does not take into account the fact that the delusion regarding Dr. Wilder developed more than two years before the killing, and there is no evidence to show that there had been anything more than a partial restoration of health, in that time. My view is that the crime was the outgrowth of a delusion, having its origin in a diseased condition of the brain, for which the accused was not criminally responsible. In a measure, this view was reflected in the verdict of the jury, as had they fully believed in the sanity of Redmond they would have sentenced him to death as the crime was clearly premeditated.

In conclusion, I fear that the medico-legal relations of crime growing out of alcoholic intoxication will ever remain an obscure chapter in jurisprudence. On the one hand will be the fear that too liberal rulings will result in the escape of great criminals, while on the other hand, the misfortunes of the alcoholic lunatic will be accounted in some degree at least, of his own making. Perhaps some of these difficulties can be met by needed modifications of our statutes by which dangerous and incurable criminal lunatics may be incarcerated for life in an asylum for insane criminals.

834 Chicago Opera House.

SOCIETY PROCEEDINGS.

The Medico-Legal Society of Chicago.

Regular Meeting, December 3, 1892.

JUDGE OLIVER H. HORTON, PRESIDENT.

E. J. Doering, M.D., President Chicago Gynecological Society, read the following paper

THE BASTARDY LAW OF ILLINOIS.

Mr. President, Ladies and Gentlemen:—The subject to be briefly submitted to your consideration to-night is strictly speaking, a legal rather than a medico-legal topic. On the other hand, it is a subject in which we, as physicians, are more interested than any other class of society, for it falls to our lot to witness the mental suffering, the physical agony of the unfortunate mother, it is our duty to usher into the world the most unwelcome of all visitors—the bastard child. On the statute books of the State of Illinois you will find the following laws relating to bastardy, which have been in force for 20 years, since July 1, 1872:

After the usual phraseology relating to complaints, warrants, trial, etc., we read as follows in paragraph viii: In case the issue be found against the defendant or reputed father, or whenever he shall, in open court have confessed, the truth of the order and judgment of the court to pay a sum of money not exceeding one hundred dollars for the first year after the birth of such child, and a sum not exceeding fifty dollars yearly for nine years succeeding said first year, for the support, maintenance and education of such child, and shall moreover be adjudged to pay all the costs of the prosecution, for which cost execution shall issue as in other cases. And the said reputed father shall be required by said Court to give bond with sufficient security to be approved by the judge of said Court, for the payment of such sum of money as shall be ordered by said court, as aforesaid, which said bond shall be made payable to the People of the State of Illinois, and conditioned for the due and faithful payment of said yearly sum, in equal quarterly installments, and the clerk of said Court, which bond shall be filed and preserved by the clerk of said Court. Paragraph xv, provides: If the mother of any bastard child and the reputed father, shall at any time after its birth, intermarry, the said child shall in all respects, be deemed and held legitimate, and the bond aforesaid be void. Paragraph xvi further provides: No prosecution under this Act shall be brought after two years from the birth of the bastard child.

Now first of all I desire you to notice that process under this Act is a *civil*, not a criminal proceeding. It means in other words simply a civil suit for damages to support the child, without in the least reflecting on the defendant in any manner whatsoever. This is all the redress the law permits to the unfortunate plaintiff. And this is called justice.

Now I presume no one will seriously question the statement that in ninety-nine if not one hundred per cent. of all cases of bastardy, the male has been the aggressive party, nor that the vast majority of cases of this kind are simply cases of seduction under the verbal promise of marriage. But the State of Illinois says officially to the male citizens, such an offense is not criminal and places the damages for degrading womanhood, for cursing innocent childhood, for producing untold misery, anguish and torment at the uniform price of five hundred and fifty dollars. On the other hand when a wretched woman, driven to despair by the outrage committed on her, kills her seducer and father of her unborn child, she is promptly acquitted by the uniform verdict of the jury "not guilty." What inconsistency! Murder justified when the State of Illinois says a fine of five hundred and fifty dollars would have been ample punishment!

Such infamous perversion of justice as expressed by the bastardy law of this State, bears of course legitimate fruit. Under its fostering care the number of illegitimate births are constantly increasing, the business of the abortionist becoming more flourishing, houses of prostitution filled with the victims of the seducer, all, thanks to their partner in crime, the State of Illinois.

Now Mr. President, we have in this Society repeatedly expressed our indignation at the laws relating to the insane, would it not be well to pay some attention to the insane laws relating to the same? Now consider this Bastardy-act of Illinois. If you hold that the woman in question has forfeited all claims, no matter how her ruin has been accomplished, by what authority do you condemn her innocent offspring? Is it just, is it humane, is it Christian to curse the whole life of an innocent being, by damning it from birth until death, by stamping on its brow indelibly the word "bastard?" If you strangle such an infant at birth, you are guilty of murder, but strangling it would be an act of mercy, rather than the existence to which you are pleased to condemn it. The statutes provide that if any time after its birth the father marry the mother, said child becomes legitimate. Is it right, is it just to leave to the choice of the guilty parent the happiness or wretchedness of two immortal lives? Leave it to the seducer's choice whether to condemn a suffering broken-hearted mother to be a social outcast, her innocent offspring to be a bastard? Do you call this justice? Mr. President, I care not for ancient, I care not for modern law, I care not for precedents in such matters I recognize a higher—a moral law—and I hold sir, that cohabitation with resulting pregnancy constitutes marriage in its truest sense, and justice is but a mockery, until the statutes declare it also to be such in a legal sense. Not until then sir, has the State done its first duty—justice to all—justice to the man, justice to the woman, justice to the child—that is equality—now it is tyranny.

If you raise the objection that the parent might be already a married man, I answer, apply to him the criminal code relating to bigamy and permit his victim to assume his name, and constitute the child an heir at law. Vice versa, if the mother be already married, punish her for bigamy and permit the child to assume the name of its father with all the rights pertaining thereto.

Where the question of parentage cannot be decided as in the case of a prostitute, often such child should be a ward of the State, whose duty it should be to provide for its adoption among the farming population with a suitable compensation to its foster parents. Minors should be treated as adults. It would teach the parents the necessity to impress upon their children when arriving at the proper age, the sacredness of the marital relations, instead of leaving them as now to get all information on sexual matters from lewd

books and evil companions. Finally if you raise the objection that rich men and rich men's sons might fall prey to designing women, I ask what of it? Think of the millions of poor women who have been made the victims of designing men and ever will be! I sincerely hope that some of the legal members of this Society will become sufficiently interested in this matter to prepare a Bill in accordance with the views so briefly uttered, and I will gladly attend to the details necessary to submit it to the Legislature at the coming session. While radical action may not be hoped for till women have a right to vote, it is still within the range of possibilities to change the Bastardy act into a criminal procedure, and one important advance towards justice will have been gained.

Our social fabric is full of imperfections, crying evils abound everywhere which sooner or later may produce an upheaval of stupendous proportions, but to mind the greatest outrage of all committed by legal sanction, is the crushing of two lives, the damning of two souls for life and of eternity, the violation of all divine law—the Bastardy act of Illinois.

Discussion.

Dr. Sarah Hackett Stevenson.—There are only a few things I have to say in regard to this law and they have already been well said by the writer of the paper. As has been stated, the complaint of bastardy is not a criminal charge, it is quasi-criminal and quasi-civil. Upon investigation I find it is a county court proceeding, not considered in the light of redressing a wrong to the mother, but is designed only to protect the county from the support of paupers. I think this is a point we should consider in our discussion. The penalty upon a conviction on this charge is "to pay a sum of money not exceeding one hundred dollars for the first year and not to exceed fifty dollars yearly for the nine years succeeding, for the support, maintenance and education of such child, and he shall pay the costs of prosecution." I call your attention to the fact that no account is taken of compensation to the mother in this proceeding, although there is an alternative; if the man has property she has a remedy in a civil suit for damages. It is my opinion that the law is entirely inadequate, there is no good reason why judgment in such cases should not be rendered for double and treble the sum now allowed. The man who is father of an illegitimate child should pay as much, if not more for its support, than the father of a legitimate child is obliged to pay for the support of his child. The illegitimate child certainly needs more protection from the law than the child born into a family with family protection; if any difference is made it should be made in favor of the unprotected innocent child, the victim. And furthermore, there should be an additional penalty, what is known as "exemplary damages" to the mother. Not a mere reimbursement of pecuniary loss, but a compensation for the injuries sustained. These are the points I should make in a discussion of this subject, viz: That it is not a criminal proceeding; and the damages are inadequate. They are simply what it would cost the county to maintain the child. We know a mother, with a child must be at a greater expense in taking care of that child, than the county could possibly be. In the first place her own earning capacity is almost ruined, and the cost which falls upon her in its maintenance is much more than the cost to the county in taking care of that child should it become a pauper. As I understand it, the monetary basis is upon the question of the cost to the county in taking care of this child if it becomes a pauper. But if we encourage the mother to take care of her child, which all people of good morals are endeavoring to do, the cost of maintaining it is much more than it would

be to the county, because the county places these children in institutions where they can be taken care of at the lowest possible rate.

Dr. C. D. Wescott.—It seems to me that no argument is necessary to make us all feel as Dr. Doering and Dr. Stevenson do in this matter. A mere statement of the law is sufficient to convince us that it is not only inadequate, but wrong, that the woman is not considered at all. The best point in the doctor's paper, however, is that the act which has given origin to new life should constitute legal marriage, as it certainly does actual marriage. The law should make every man feel that if he is an actual father, he owes it both to the mother and to the child to be as much a father to that child as the mother will allow him. If she does not want to live with the man who has deceived and wronged her, she certainly has a right to claim everything else that the father of that child should do for it and for her. If it is possible for this Society to do anything to influence legislation in that direction we should do it. We should certainly give Dr. Doering hearty thanks and approve the paper in a public way.

Mr. Joseph W. Errant.—I have been brought in contact, from the lawyer's side, with a good many of these cases, and speaking from that standpoint I heartily approve of what has been said here this evening. Every word the speaker of the evening has said in regard to the bastardy laws of the State of Illinois is true, and if he had spoken stronger he could not have gone far astray. It is simply another illustration of the fact that many of us meet with in considering the laws of the State of Illinois, that whereas in material prosperity we claim to be one of the first States of this Union, yet so far as our legal system is concerned we are in the dark ages. This is only one of a thousand instances that might be brought up to show the weakness in our practice and in our laws, and this brings home to us this thought: What we need in the State of Illinois is a commission of men learned in the law, who have had wide experience and will devote five or ten years of their lives, by the consent of the people, to investigating this subject and devising for us a legal system under which this great community may go forward in the future. Three-fourths of the States of this Union have laws making seduction a criminal offense. The great State of Illinois by this bastardy act gives a license to any man to seduce any woman in this community that he may see fit to follow. A license, that's what it is, and nothing else. Yet, when it was proposed some four years ago to place a law on the statute books of this State making seduction a criminal offense, the men in the committee said, "it is all very well to protect your daughters, but we must also protect our sons; what will become of the poor boys if we place such a law as this upon the statute books of this State?" That is the way they looked at it. So back of this law there must be public opinion. There must be a social opinion which will demand a different order of things, which will look at mothers from a different point of view. Back of such legislation as you call for, there must be a social opinion among women which will not trample upon any woman who is placed in the position you have described to-night, and which has come under my observation, not once, but a hundred times, not the social opinion of the mother, for instance, who when her son has done a wrong act passes it over and gladly welcomes him back to the home, but shuts the door to the daughter who has possibly made a misstep. So in addition to what Dr. Doering has said I would impress upon you the fact that this question is a very large one indeed, that it is not merely a question of legislation and law, but also a question which has very much to do with the social opinion of men and women.

It is an absurdity to assume that a woman can bring up a child on the pittance which this law provides. Further than that there is no provision made under this law for the long period of inability to work which may precede the birth of the child; and if the child does not live there is no payment at all. It is purely a question of support. This law is simply one evidence of many absurdities on our statute books, all of which ought to be done away with and better provisions made. We face the fact that there is not sufficient public opinion in this community to demand even the law which I have described, and which provides that seduction shall be made a criminal offense, whereas in three-fourths of the States such a law exists. We have furthermore to develop a social opinion which will consider this question from a larger point of view. It is a social question, and it is also a legal question.

Mr. David J. Wile:—Inasmuch as the proceedings of this meeting are to be published to the world, it is but proper that exactness should characterize statements concerning the bastardy statutes of Illinois. Interesting as is Dr. Doering's paper, it has not given an accurate statement of the law as it stands to-day. In addition to what has been stated, the statute provides, that after a defendant has been adjudged the father of the bastard child—in case he refuses or neglects to give such security as may be ordered by the Court—he shall be committed to the jail of the county, there to remain until he shall comply with such order, or until otherwise discharged by due course of law. *Any person so committed shall be discharged for insolvency or inability to give bond; provided, such discharge shall not be made within six months after commitment.*

The statute further provides: The mother of a bastard child, before or after its birth, may release the reputed father of such child from all legal liability on account of such bastardy, upon such terms as may be consented to in writing by the judge of the County Court of the county in which such mother resides: Provided, a release obtained from such mother in consideration of a payment to her of a sum of money less than four hundred dollars, in the absence of the written consent of the county judge, shall not be a bar to a suit for bastardy against such father, but if, after such release is obtained, suit be instituted against such father, and the issue be found against him, he shall be entitled to a set-off for the amount so paid, and it shall be accorded to him as of the first payment or payments: And provided, further, that such father may compromise all his legal liability on account of such bastard child, with the mother thereof, without the written consent of the county judge, by paying to her any sum not less than four hundred dollars.

I do not regard Dr. Doering's proposition of *ipso facto* marriage as a practicable remedy. In its very essence, marriage in the first instance is purely matter of contract, not enforceable against the will of either party. The action for breach of a promise to marry is one to recover damages for breach of a contract, not for the commission of a tort. An enforced marriage does not mean support.

The law provides for the recovery of mere money damages in cases of seduction. The ability to enforce payment depends upon a defendant's financial condition. Strange as it may seem in these days of moral enlightenment, Illinois lags far behind her sister States by failure to treat real seduction as a heavily punishable crime. There is reason to hope that the next Legislature will remedy this defect in the law.

The real truth is, that illegitimate births occur principally among those classes of our population where pecuniary redress is practically impossible, because of poverty. In the so-called "higher classes of society," other means seem

to be accessible, whereby the responsibilities of paternity and maternity may be evaded. That those means come within already existent criminal inhibition, quite as worthy of consideration as the subject discussed this evening, may be safely admitted.

It occurs to me, however, that many of the shortcomings of the present bastardy law might be remedied if the jurisdiction of Courts of Chancery were enlarged so far as to permit the prosecution of a bill for separate maintenance for the benefit of the innocent child, under provisions similar to those which now exist in favor of wives who, without their fault, live separate and apart from their husbands.

The broader and deeper question involved cannot be settled by enacted laws or judicial decrees.

Dr. J. B. Hamilton:—In regard to one point suggested by the last speaker there is a fact bearing on this which is a precedent: In the Legislature of Washington Territory some years ago they enacted a law in regard to white men living with Indian women, that all such as were found and reported to the court should be recorded as legally married and the children should be declared legitimate. That was carried into effect, and hundreds of persons who had gone into Washington Territory at an early day and lived with squaws, were obliged to take care of children under the act cited. I cannot give its exact date, but I think it was 1875. That carried into effect the suggestion of Dr. Doering, and I never heard that there was any legal objection to it on the part of anybody.

Mr. L. Kistler:—It is perhaps difficult for any one to suggest just exactly what would be the proper line to take. It is true that a man who is responsible for the existence of an innocent being should be held responsible for the support, not only for a certain number of years, but as long as it may be necessary. It seems to me an ordinary rational view would demand that a man should be held responsible by society for his acts. In my practice I have prosecuted one bastardy case, and that set me to thinking. I cannot repeat my language, but the defendant got so angry that he got up and shook his fist in my face, and of course the result was he was convicted. However, he made amends by marrying the girl subsequently. I am inclined to think that our law is simply the outgrowth in a measure of the average public sentiment. We may hold advanced views, but as a rule no thoughts or views culminate in the law, because law is simply a crystallization of the average common sentiment of society. I sometimes am discouraged, but recently I had occasion to examine the jurisprudence of the State of Rhode Island, and I found that it is about two hundred years behind the times; so I came back to the State of Illinois feeling that we have made considerable advancement.

In regard to this Bastardy act, it could be improved. As it stands it is simply an attempt to provide for the support of the innocent child, irrespective of the effect it may have upon the mother or upon the father, but it fails to do this under the existing state of society. There should be abundant provision for the child until it is able to take care of itself. I would feel inclined to go so far as to make the father thoroughly responsible for the child. As to the mother, of course the bastardy act goes upon the basis that one is as guilty as the other and is not for it to say which it is. I think, however that in most instances the man is the responsible party, although there seem to be, in the condition of society as it is, some exceptions. But in any case I would go as far as suggested by the speaker before me, that there should be more abundant provision by legislation that the innocent one should be provided for, and the father be held responsible just the same as if the child had been born in wedlock.

Judge Horton:—It would not be an easy matter to those who have had any experience to say just how you would

defend a man, guilty or innocent of this charge. I have never known a man to be acquitted when he was charged with it, and a lawyer who could try such a case before the average jury and get the man free when the woman accuses him, would have a successful practice in Chicago.

As to the topic of legislation, I do not know whether Dr. Doering knew what he was assuming when he offered to take charge of this, but I had a little experience some years ago when I sent down to the Legislature an amendment to the divorce law. It was supported by every paper in Chicago. The *Tribune* got the views of nearly all the judges in the State of Illinois, and published column after column recommending it. It passed the House but failed in the Senate, and some was suggested to me that the reason it failed was that every one of those fellows knew that his wife had good reasons for a divorce, and did not approve of enlarging the subject.

American Electro-Therapeutic Association.

Second Annual Meeting, held in New York, October 4, 5 and 6, 1892.

WILLIAM J. MORTON, M.D., PREST.

FIRST DAY OCTOBER 4—AFTERNOON SESSION.

(Continued from page 188.)

I am not aware of any further literature relating to general treatment by means of electrodes.

I may remark here in passing that I have found that the cataphoric power of electricity is not confined to galvanic currents alone. With the aid of the "Static induced" current first developed by me from an influence machine and using block tin electrodes and blotting paper to retain solutions, I have caused cocaine anesthesia, and introduced iodine and many other medicines through the skin. Using tincture of iodine as described, over the spinal cervical centres, I have arrested completely a case of progressive muscular atrophy in which the disease had already invaded and was successively invading the muscles of the upper extremity.

I have also devised and used a cataphoric mouth electrode, by means of which solutions of medicines held in the mouth are caused to enter the circulation by the mucous membrane of the mouth, thus avoiding the fluids of the stomach, and a similar electrode which performs the same function per rectum.

Electric Baths.—The electric bath itself, has long been regarded as not a little *ex cathedra* even to the liberal minded medical "electrician," and much more so the "medicated" electric bath.

A careful study of the physics and physiology of the subject will convince even the most skeptical of the fact that medicine can be practically introduced through the unbroken skin by immersing the patient in a fluid electrode which in fact such a bath constitutes. Edison's experiment of causing the patient to immerse the hands in fluid was in reality a limited electric bath, and now that we have his authority as well as that of Mr. A. E. Kennelly, who personally superintended the experiments, we may accept without shrinking the principle of the "medicated" electric bath. Moreover, high scientific approval of this method is not wanting in the careful work of Gärtner, Cagney, Stevenson and many others.

Cataphoric D. medication.—It is scarcely probable that anything more than extraordinary circumstances would call for the elimination of medicinal substances from the body by means of electricity, since it is probably impossible to prevent their natural elimination, and since again other simple means of elimination are available, as for instance the administration of iodide of potash in lead poisoning.

Still the occasion may arise as in ulcers due to direct poisoning of metallic salts employed in electro-plating. Such was the occasion, I believe, which first gave rise to the method. About 1855, a Mr. Vergnès, an electro-plater of Havana, Cuba, found that he had an incurable ulcer due to frequently plunging his hands into solutions of cyanide and nitrate of silver and gold. One day, accidentally immersing his hands into the bath already prepared for plating he found that the negative element had received a metallic coating. The hint was acted upon and a number of similar treatments resulted in the rapid cure of the ulcer.

From this incident sprung the Vergnès "electro-chemical bath" as it was named, and practiced by a Mr. Royal in New York City. Its vogue seems to have depended largely on a rampant idea that mercury clung to the system of many unfortunates and should be eliminated by this method. The bath tub was of copper and insulated from the earth, the patient was also insulated from the tub by sitting on a wooden-seat. The water, in case gold, silver or mercury was to be eliminated was acidulated with nitric or hydrochloric acid; if lead was to be removed, with sulphuric acid. The positive pole of a thirty cell galvanic battery was held in the hands while the negative pole was connected to the copper bath tub. A porcelain tub in which is immersed a copper plate will do equally well. In the same year M. Poey made this method the subject of a communication to the French Academy.^{4,5}

Vergnès also reversed the current in his bath and claimed to introduce medicinal substances, notably phosphate of iron in a solution to which nitric acid was added, and also quinine. The patient sat in a bath containing the solution of the medicine holding the negative pole in the hands. No physician could consent to put in practice a method as inexact as the above outlined, unless advantages not obtainable by stomach or by hypodermatic administrations can be demonstrated.

Experiments could be easily made which would determine the accuracy of these claims. The question of resistance comes to the fore, if this is too much reduced by acids and inorganic salts the conveying power is also diminished.

Gärtner and Ehrmann⁶ have already practically to a large extent answered this objection in their published experiments of introducing corrosive sublimate by the medicated bath method in the treatment of syphilis. Four to six grams of corrosive sublimate were put into the water; the current strength was 100 ma.; the duration of treatment 15 to 20 minutes; at the end of four days there was still to be found in the urine of 24 hours, 0.7, 0.3, and 1.3 mgr. of mercury. Kronfeld has corroborated Gärtner's results in Prof. Lang's clinic in Vienna.

In conclusion, while we must grant the solidity of the physical facts we yet need much clinical experience and, the time has not yet come for a judicial expression as to the value of these methods in general medicine.

NOTES UPON THE CHEMISTRY OF CATAPHORESIS.

By W. H. Wailing, M.D., Philadelphia Pa.

Before entering upon the discussion of the subject-proper let us glance at the tissues and cells of the human body, and briefly consider the effects of the electric current upon them.

A condensed classification of the tissues of the adult is as follows:

1. *Epithelial tissues.*—The primitive surface tissues of the inner and outer germ layers, which are variously modified for several distinct duties.

⁴ See Medical Electricity, Stevenson & Jones, Philadelphia, 1892.

⁵ See A Treatise on Medical Electricity, by Julius Althaus, Philadelphia, 1873.

⁶ Lewandowski, Electro Diagnostik and Electro-therapeutie. Wien and Leipzig, 1892.

2. *Nerve tissues*.—Springing from the former and conducting, controlling and distributing impressions.

3. *Muscles*.—Or contractile tissues in close relation to both of the previous groups.

4. *Connective tissues*.—The materials used in the general body architecture. Bone and cartilage, modifications of connective tissue, we need not consider. The blood vessels are chiefly made up of connective tissue, and even the blood itself may be considered as an outcome of this fourth group since the cells of the blood are first formed in the mesoblast and later from the connective tissue corpuscles.

The various secreting organs are made up of epithelial cells, held together by connective tissue, and in close relation to blood-vessels and nerves.

All these tissues have their origin in the primitive material which we term *protoplasm*. This protoplasm has certain movements which characterize its life and these movements are affected by mechanical, chemical and electrical stimulation, differing in character. That if slight excitation by the induced or faradic current, increases the rapidity of the movements, stronger ones cause tetanic contractions, and numerous and powerful ones cause coagulation. In this connection, I enter my protest against the use of strong faradic currents given by the street-fakir, or the so-called testing machines found in public places. Such experiments are dangerous, and should be prohibited by law.

The galvanic current causes dilatation and contraction of the blood-vessels by direct stimulation of their muscular fibers, acting in like manner upon the lymphatics, "causing more ready circulation of the blood and nutritive fluids; increased power of imbibition of the tissues; increased osmotic processes; changes in the disassimilation and nutrition of the nerves on account of their stimulation or sedation; changes in the molecular arrangement of the tissues, caused by electrolytic processes; and finally the consequences of the mechanical transport of fluids from one pole to the other." (Erb.)

The current exerts a more or less direct influence upon the trophic centres in the anterior cornua of the spinal cord. Its action on the brain, we will not consider in this paper.

Under powerful shocks from a dynamo, the red blood corpuscles are immediately disintegrated and destroyed, producing instant somatic death. Very strong currents from a galvanic series will also disintegrate the living cell in the interpolar region. Under moderate currents, interpolar effects and changes are scarcely noticeable, yet they take place in a proportionate degree. These changes in the vital processes, and the consequent good results obtained by the use of electricity alone, are often greatly increased by the timely and judicious combination and application of the galvanic current and certain drugs and chemicals. This method I have styled anodal and cathodal diffusion. It is also called cataphoresis. I need not go into the history of the subject, it being somewhat familiar to most of you. I wish more particularly to call your attention to the chemistry of the poles of the galvanic series, and the corresponding chemistry of the substances to be used with them in cataphoresis.

First as to suitable electrodes. Tin has been quite extensively used as it oxidizes slowly, and the resulting compound is harmless. Gold and platinum are better, but too expensive. In place of either of the above metals I use carbon. The disc which is about one and one-quarter inches in diameter is shaped with a file so as to receive an insulating ring of hard rubber, which projects about one eighth of an inch forming a shallow cup with the carbon as the bottom. Before the rubber is permanently adjusted, the carbon is submitted to a bath of hot paraffine and fully saturated with

it. This renders the electrode impervious to all liquids, while not interfering, practically, with its conductivity. The rubber ring being adjusted, and a suitable attachment made, the diffusion electrode is ready for use. As a vehicle for the medicament, absorbent cotton or white blotting paper discs may be used. In some cases where the whole limb or a joint is to be treated, my bandage, made of tin foil, is to be used over the wetted bandage. This latter method may be used to advantage with the lithium salts in gouty joints. The current intensity to be used is determined to some extent by the sensations of the patient. I am in the habit of using from five to ten or fifteen milliampères, with sittings lasting from five to ten or fifteen minutes, the drugs thus used being morphine sulphate, cocaine hydrochlorate, mercury bichloride, potassium iodide, lithium citrate and aconitine, in solution, and tincture of iodine and chloroform. Other substances have been mentioned and used by prominent operators, notably helleborine, onabain, strophanthin, menthol, carbolic acid, etc., by Dr. Frederick Peterson.

Does electrolysis take place during cataphoresis, and what are the reactions? The law of chemical affinity is an electrical one, and "polarity" determines the formation of all crystallizable bodies. Some substances are always electro-positive in their affinities, and some are always electro-negative. For instance, hydrogen is always electro-positive and oxygen is always electro-negative. Some elements, on the contrary, are variable. Copper is electro-positive when coupled in a galvanic pair with mercury, tin, iron, nickel, zinc, lead and some others, but electro-negative if thus coupled with silver or platinum. Silver is electro-negative towards lead in a solution of dilute nitric acid, but electro-positive toward the same metal in a solution of cyanide of potassium.

Regarding electrolysis, which I think takes place in all our cataphoric applications, with possibly a few exceptions. Prof. Rhoc says: "It seems clearly established by numerous experiments that galvanic conductions through liquids is always electrolytic; in other words, there can be no conduction of an electric current through a liquid without that molecular re-arrangement in the fluid through which the current passes, and that molecular disintegration at the surfaces of the electrodes which we know as electrolysis; that the various processes supposed to go on in the body under the influence of an electric current, and termed by different authors absorptions, electrical osmosis, and electro-catalysis, will properly be ranged under the single conception of electrolysis.

"It is held by some that there is an actual transfer of ions from one pole to the other. By others that there is a polarization of the molecules, so that the electro-negative element is forced towards the anode, and the electro-positive element towards the cathode, where the terminals appear as ions.

"It must be remembered that electro-negative bodies may acquire electro-positive polarity, and *vice versa*, the polarity of the elements depending upon their relations to other elements in a compound, rather than upon any intrinsic property. This will account for some otherwise anomalous changes in electrolysis."

Whilst this latter statement is true, there are many elements that are constant in their chemical affinities.

We will now consider some of the substances used in cataphoresis in their relations to the anode and cathode. I have already referred to hydrogen and oxygen. The law of polarity will be found in full force here. The hydrochlorate of cocaine has the chemical formula of $C_{17}H_{19}NO_4$, HCl . Used upon the anode, the acids being electro-negative would collect at the anode, while the base, cocaine, being

electro-positive, would be repelled and driven into the tissues. The fact that this salt, used upon the cathode, does not produce anæsthesia, proves this clinically.

Chloroform, having the chemical composition CHCl_3 , and which may be considered to be the chloride of the trivalent radical formyl, would also, theoretically, be used on the anode, although it is denied by some that electrolysis takes place in this substance, with the weak currents used. I have never used it with the cathode.

With morphine sulphate, mercury bichloride, lithium citrate and aconitine, the anodal pole is used, and for the same reason; the base being electro-positive is driven into the tissues. If, however, we wish to introduce the benzoic acid in benzoate of sodium, we should use it with the cathode.

Iodine and iodide of potassium. It has been the custom with all operators to use these substances with the anode. Now iodine is an electro-negative always, either when alone, or in combination with potassium, and when acted upon by the galvanic current, will be repelled by the negative, and attracted by the positive pole. This is easily demonstrated by wetting a piece of absorbent cotton with a strong solution of iodide of potassium, place it upon the cathode and a thin piece of coagulated egg albumen upon that, wrap the anode in absorbent cotton and wet it in plain water. Place the anode upon the albumen, turn on about thirty ma. of current, and you will soon perceive free iodine on the anode, it having been freed from its combination by electrolysis and forced through the albumen. Reverse the current, when instantly free iodine appears at the lower pole wetted with the solution of potassium iodide, and gradually disappears from the upper electrode, where it had before collected. The iodine does not appear in the interpolar region, but we must remember that we are now dealing with dead animal tissue, and not with the living cell capable of absorption and assimilation.

Repeat the experiment, using the tincture of iodine, and a piece of chicken skin in place of the albumen. (Of course fresh cotton is also used.) Place the skin on the cotton wet with the iodine, it being on the cathode, the flesh side uppermost. Wet the other pole in plain water as before, turn on a current of five milliamperes for five minutes, and the iodine will appear at the anode. Take fresh material all around, and repeat the experiment with the poles reversed. No iodine will appear at the cathode, which is now on top. As before stated, iodine is always electro-negative, consequently is always repelled by that pole.

A prominent operator and writer reported a case some time since in which he used the tincture of iodine on a goitre with the anode, and claimed wonderful success therefrom. That there was an increased absorption by reason of the stimulation and increased vascularity as a later result, I am ready to admit, but am not willing to concede direct penetration of the substance due to the direct action of the current. Had he used the cathode, there would have been all three, increased stimulation and absorption, and a direct introduction of the substance into the tissues.

In certain skin affections, especially those of a parasitic origin, I have used mercury bichloride on the anode with most happy effect, when other remedies have failed. This method is safe, pleasant and sure. In herpes circinatus, ringworm of the scalp, etc., a 1-1000 solution of the bichloride on the anode, using a current suitable to the case, will soon result in a cure.

To recapitulate: Use with the anode, all substances the base of which, being an electro-negative body, you wish to introduce into the system, and with the cathode such as are electro-positive in character, or when it is the substance taking the place of an acid, as in potassium iodide.

I was the first to call the attention of the profession to

the *chemistry of cataphoresis*. This was done before the Philadelphia Electro-Therapeutic Society, February 12, 1891,¹ and again before the Alumni Association of the Medico-Chirurgical College, March 20, 1891.²

I shall continue my investigations in this interesting field with still other substances, and report results at some future time.

1606 Green St.

CATAPHORESIS IN GYNECOLOGY.

by Dr. A. H. Goelet, of New York City.

Unfortunately, or perhaps fortunately for my hearers, there is little to be said upon cataphoresis in gynecology. So far as I am able to judge from my own experience cataphoresis has a limited usefulness in gynecology. Perhaps others have pushed their investigations further and have formed a different opinion, and for this reason I would prefer to listen rather than endeavor to impart any information, but I have consented to respond hoping that the little I may be able to contribute may possibly suggest more extended investigation in this direction. If I have not done this myself it is because I believe I have been able to accomplish the desired end more readily in some other way.

Some years ago I did considerable work with cocaine upon the positive pole in the vagina for the relief of pelvic pain and congestion of the pelvic organs, and believe I succeeded in affording relief in many instances where, at that time, I was unable to relieve so readily by other means. Subsequently morphia was employed for the same purpose and I must say with some satisfaction. But afterwards my attention was directed to the tension faradic current which was found more serviceable, and cataphoresis for this purpose was abandoned.

Now the only use I find for cataphoresis is to produce anæsthesia of the vaginal wall, which renders puncture more tolerable to the patient. With a 4 or 8 per cent. solution on the positive pole, with 10 or 15 m. used for five or six minutes the vagina can be rendered so insensitive that the needle can be introduced without the patient being conscious of what is being done, and in nervous, highly sensitive patients this is a great advantage. Unless the tumor, or mass punctured, is unusually hyperæsthetic the pain sometimes experienced while the current is in force is very much diminished also by applying this drug in this manner before hand, and the aching which sometimes follows immediately after puncture is materially lessened.

I have made some experiments with ergot and iodine introduced through the vagina by this means but cannot say that the results so far have been encouraging. I have discovered however, that the vagina can be very thoroughly blistered with these remedies, if the current is too strong, in fact with a comparatively mild current. Dr. Hunter McGuire has, I believe, obtained some satisfactory results from the use of iodine in this manner in fibroid conditions.

By means of this process it is possible to introduce drugs into the interior of the uterus and as this is an excellent absorbing surface no doubt something may be accomplished in this direction. A novel method of application has been suggested recently by a gentleman in this city whose name I cannot now recall. He employs plaster of Paris moulded around a platinum wire and saturates the plaster with the drug to be employed.

The use of iodide of potassium has been mentioned as a remedy to be used by cataphoresis. As I understand it, this is not strictly cataphoresis, since the solution is decomposed, but it is rather electro-chemical decomposition and not electric cataphoresis.

¹ See Times and Register, March 21, 1891.

² Ibid., April 9, 1891.

As I have said, I would prefer to hear from some one who has made more extended investigations.

THE USES OF ANODAL DIFFUSION IN NEUROLOGY.

By F. Peterson, M.D., of New York.

In discussing this question of the employment of electric cataphoresis in nervous diseases I can hardly do better than quote from one of my former papers the main points at issue.

"I was led myself into making a study of electric cataphoresis by my own work in a neurological line, and my first experiments were conducted with a view to relieving pain. I received the suggestion after vainly endeavoring to combat severe supraorbital neuralgias in several patients. All known appliances and agents of the healing art had been ineffectual, blistering, electricity, aconitia, and the progressive series of narcotics and anodynes, which generally terminate with the morphine habit. One of the patients had suffered from morphine inebriety for a year, but had recovered from that with her supraorbital anguish unassuaged. I found that ten to twenty per cent. solutions of cocaine on the anode gave absolute relief in these cases for from four to ten or eleven hours, and without constitutional effects of any kind. A deep analgesia was produced in the area covered by the anode. No doubt constitutional effects would ultimately result by indefinite continuance of the application.

Since that time I have made it a point always to use the cocaine solution in any sort of superficial pain in which I think the anode to be of advantage. The method does not mitigate neuralgic pains which owe their origin to lesions far back of the point to which the electrode is applied, as in disease of the Gasserian ganglion, or the idiopathic neuralgias of central origin; and it is here that cocaine cataphoresis has actual diagnostic significance. If the pain is relieved by the treatment, the lesion is in the immediate neighborhood, or peripheral to the anesthetized area, and this would furthermore suggest the possibility of permanent cure by neurectomy. This idea of the diagnostic value of cocaine cataphoresis is Dr. Starr's, and it has some sort of corroboration in a case of intense supraorbital neuralgia which I lately saw with him. A 20 per cent. solution of cocaine used with a strong current for a considerable period of time did not diminish the paroxysms of pain in the least. A few days afterward neurectomy was performed, and this also had no effect upon the neuralgia.

Cocaine employed in this way does not cure neuralgias of peripheral origin. All that is claimed for it is that it gives relief without producing constitutional effects, and is, therefore, superior to any narcotic given internally, and to any other local application.

Other local anesthetics are chloroform, aconitia, ouabain, strophanthin (Arnaud's), helleborin, menthol, and carbolic acid.

Chloroform causes a dermatitis, and should be used only when counter-irritation is desired in conjunction with a transitory anesthesia. I have employed chloroform cataphoresis in one case of cervical neuralgia with good effect. Helleborin and aconitia I have also used successfully, but the latter, while it gives rise to a deep analgesia, also causes painful burning and smarting, unless combined with a cocaine solution.

While my experience with the method has been chiefly in neuralgias of superficial nerves, I have not failed to give it a trial in other conditions where it seemed to be expedient. I have been using cocaine and helleborin with the anode in two cases of tic convulsif of late, placing the electrode over the trunk of the facial or one of its branches. Whatever may be the explanation of its effect, these cases certainly

show very great improvement, and a remarkable diminution of the spasm after each application, such as was not obtained from the employment of the electric current alone. In a case of blepharospasm, cocaine cataphoresis practised near the outer angle of the eye produced a very marked change in the extent and frequency of the movement. I have no doubt, however, that the results would be better still if we had some drug to use with the anode which would act upon motor nerves in the same way as the local anesthetics act upon sensory nerves; if, in other words, we had some trustworthy local paralytic. Atropia and curarin do not seem to answer the purpose.

There can be no doubt that the effects of the galvanic current upon nutrition are in part due to the cataphoretic transfer of molecules of protoplasm and liquid from one cell to another, or from a cell to a capillary vessel in the path of the anodal stream, and since the diffusion takes place more readily and more quickly in direct proportion to the current strength it behooves us to employ as many milliampères as feasible in our galvanization of the atrophied and paralyzed extremities of poliomyelitis, chronic neuritis, and peripheral nerve trauma. Moreover, there would seem to be a possible advantage in the use of nutritive emollients in conjunction with the labile application of the anode to the atrophied member, just as they have been combined from time immemorial in the exercise of the aliptic art (massage)."

General Discussion.

Dr. Massey had made use of this method in connection with cocaine applied on cotton to the vagina and to the uterus. The anesthesia was not marked in the vagina, and he attributed this to the fact that the upper portion of the vagina is normally insensitive. A more positive anæsthetic effect had been noticed from the positive pole in the uterus. The method is chiefly of service in producing very superficial anesthesia, and is, therefore, not very useful in gynecology.

He had tried cataphoresis in connection with iodide of potassium in the treatment of enlarged glands in the neck, but he thought it objectionable for strong currents cannot be employed on account of the great irritation of the skin which they produce. The glands were considerably swollen for some days after each treatment. Better results were observed by using his favorite soap electrode, and a current of sixty milliampères.

In making a vaginal application he usually employed a zinc electrode, insulated with rubber, and wound tightly with cotton, and he had experienced considerable difficulty in keeping the cotton sufficiently moist. When the cotton became so dry as to offer undue resistance to the passage of the current, he reversed the direction of the current, making it negative. This would cause the cotton to become moist again, and allow the current to pass more easily. The method was a good illustration of electro-convection.

As an example of electric elimination, he referred to a practical use which he had made of it. While removing hair from the face, with an iron needle, he had accidentally made this needle positive, with the result of immediately producing a metallic stain in the skin. By reversing the current, and using a clean needle, the metal was in a few minutes re-deposited upon the needle, and this too, without greatly increasing the irritation. It had not infrequently happened that without our knowledge we had made use of cataphoresis to impregnate our patients with the metal from the positive electrode. He had employed iron on the supposition that this metal was not a foreign substance in the human system.

Dr. Hutchinson thought the effect was about the same

whether the solution was applied on one or the other pole? Cataphoresis at present occupies about the position of the phonograph, and its practical value has not yet been determined. With the exception of a few observers—notably our own members, Drs. Peterson and Morton—most of us had not accomplished any very definite results with it.

The President said that he wished to be placed on record as a firm believer in cataphoric phenomena, and he thought simple cataphoresis would prove to be one of the most important branches of our subject.

Dr. F. von Raitz, of New York, said that there seemed to be confusion concerning this subject, some observers claiming that there was only anodal diffusion, others, that there was only cathodal diffusion, while still others, believed that the diffusion occurred at both poles; yet these widely different views are held by men all of whom had had large clinical experience. The speaker said that in the paper which he read before the Association at their last meeting, he stated that as it has been generally admitted that acids are found at the positive pole, and alkalies at the negative, it must also be admitted that certain chemicals are more easily diffused from one or the other pole, and others again, from both.

Dr. Nunn said that the reference had been made to Verrier's experiments in 1855. He had repeated these, and had published the results. So far as mercurial de-medication was concerned, these results were entirely negative, and also as regards Verrier's experiments and claims. He had recently experimented with cocaine and other substances in connection with extirpation of urethral caruncles, and had found the method quite useful. He had also followed the experiments of Hunter McGuire, and like the President, he had applied the iodide of potassium to *both* poles. He did this because he thought this would favor the interchange of the elements, and he believed that he had seen benefit from it. It was bad policy to use iron needles in removing hairs; the delicate point of a gold needle will pass into the skin with the utmost ease if a mild negative current is first turned on. For twenty years, he had used the same two gold needles, and he had made extensive use of this method of epilation, removing six thousand hairs from one patient alone.

Dr. E. V. Agramonté, of New York, by irritation, said that he had witnessed the effect of cataphoresis in his own person, as he had presented himself as a subject for experimentation at the time when Dr. Peterson first presented his paper on cataphoresis before the New York Academy of Medicine. Five minutes after introducing the cocaine into his hand by the current, the hand felt entirely anæsthetic over an area of two inches in diameter, and the skin which is quite thick, could be pierced very deeply with a needle without his feeling it. We all know that we cannot apply a 10 per cent. solution of cocaine to the unbroken skin of the hand without the aid of electricity, and obtain any such result. If he recollected correctly, the anæsthesia remained more or less pronounced for several hours, and the application produced no untoward effect excepting a redness of the part which lasted for a day or two. He thought this report was due to Dr. Peterson, and he offered it as a personal testimony to the passage of a solution through the epidermis, which we know is an impassable barrier to endosmosis.

Dr. E. L. H. McGinnis of New York, said that his experience with cataphoresis had been limited to three or four cases, and in these no definite results were obtained. He had tried it with cocaine on the positive pole, and applied to the vaginal vault, and to the skin. No effect had been produced on the latter, and a slight action was observed in the former case, which was attributed by him to the cocaine itself, irrespective of the action of the current.

Dr. Massey quoted the experiment of moistening the negative pole with a solution of iodide of potassium, and placing it on the back of an individual, and passing a current while the positive pole was placed to the breast, and so making the iodine transverse the body, just as it would a bowl of water. He was inclined to think we were mixing up electrolysis with mere cataphoresis.

The President remarked that this was the famous experiment made as far back as 1833, and repeated hundreds of times since then without success. He had himself repeated the experiment, but could not obtain any iodine at the positive pole. Undoubtedly, free iodine would be eliminated through the kidneys, and could be easily detected in the urine, but this was a very different matter.

Professor Houston, in closing the discussion, said that he had not known before that electro-therapeutists looked upon the ordinary action of the current as a cataphoric action, as he had never seen it so stated in any standard medical work. It is a well established fact, that there is a normal, and abnormal cataphoresis, and on this account, he was surprised that every now and then there should a discussion as to the difficulty of estimating the resistance of the human body; for, if cataphoric action takes place, the resistance must vary with the strength of the current upon which the cataphoric action depends, and moreover, it will be symmetrical. There is also a variation in the resistance due to electrical polarization, but this is asymmetrical. He had been asked if there was any peculiar effects existing in the intra-polar region at the surface of the membranous sacs in the human body. The current must necessarily cause an engorgement of some tissues, and a depletion of others. He could not agree with the president, that osmosis might be neglected in the study of the physics of electro-osmosis. The fact that in osmosis there is an unequal mixing, shows that there must be unquestionably a transportation of material from the negative to the positive pole, as well as from the positive to the negative, and for this reason, there does not seem to be any occasion for placing the material on both electrodes. He was not aware that any one had claimed to produce free iodine in the manner described by Dr. Massey, although this might be expected as all the phenomena of cataphoresis are dual phenomena. The fact that an electric current reverses the action of cataphoresis is no proof that the transportation is purely a mechanical one; indeed, he thought this fact showed how intimately electrical phenomena are associated with those of ordinary osmosis. The current produced by ordinary osmosis does not tend to help but rather to retard the passage of a liquid from the positive to the negative pole. It does not, therefore, seem possible to consider cataphoresis independently of osmosis, for apparently no osmotic current is produced without the development of an electric current.

FIRST DAY—OCT. 4.—EVENING SESSION.

STABLE ELECTRODE, OLD MATERIALS NEWLY ARRANGED.

By R. J. Nunn, M.D., 119 York St., Savannah, Ga.

The ingenuity of the students of electro-therapeutics has been so thoroughly exercised in looking for new materials for use as stable electrodes, that it would seem that a limit has been wellnigh reached and no new substance is likely to be proposed for that purpose. For that very reason, however, suggestions for the modification of some of the older forms, perchance for improvements in the methods of using old materials, may not be without profit and advantage.

Excluding from this discussion all forms of cauterizing electrodes, it will be observed that the one quality common to all electrodes used for conveying currents of high potentiality is moisture, and this is true of every variety from

clay to punk. It follows then that the true electrode is water.

From this it may reasonably be argued that the arrangement which will bring the largest amount of water in closest contact with the skin, and withal is most convenient to handle, will be the form which will commend itself most to the working electro-therapeutist.

Without stopping to canvass the merits and demerits of many varieties (both of form and material), which from time to time have claimed the attention of the profession, let me here say that the simplest, handiest, most convenient and withal the most efficient material which has presented itself to me is cotton or linen cloth.

Of course this has been used by every operator, but it may not have been used in the manner about to be suggested.

Assuming that the quantity of fluid interposed between the surface of the body and the metal electrode has much to do with the distribution of the current over a large surface, it is my habit to employ such a number of pieces of the material used as will make a pad of an inch to an inch and a half in thickness when wet. If lint is used forty or fifty pieces will usually be found sufficient. Less will do with patients who are not very sensitive, but sometimes more may be used to advantage. It is hardly necessary to say that the pad may be a single mass or may be compounded of pads of different thicknesses.

The construction of this pad is simplicity itself.

A number of pieces of material—say lint—are cut of the size desired. These are sewed together by a single loose stitch in the center which keeps them in place. The stitch must not be tight or an indentation will be made in the pad, which is not desirable.

This pad may be used with or without a piece of chamois leather to insure closer contact with the skin.

Assuming the chamois to be employed, the first step will be to thoroughly moisten it and carefully apply it, avoiding wrinkles and air bubbles.

Over the chamois so applied a few layers of well wetted lint should be smoothly applied, and the remainder of the thickness desired is made up of moist lint.

It is well to have the first layer wringing wet, as more perfect contact is thereby assured.

If the pad is all in one it should be laid out flat, then soaked with hot water, the excess of water pressed (not wrung) out, and the contact surface sprinkled with sufficient water to make it quite wet. It is then applied to the part.

After the pad has been placed in position the metallic conductor is placed upon it, and the electrode is complete.

It may not be amiss to mention the well known fact that the size of the metallic plate has much to do with the distribution of the current. The plate should be pliable, so as to adapt itself uniformly to the pad, which, as is already well known, is a necessary condition if you would have the current evenly distributed over the surface.

Of whatever material the electrode is made, however carefully applied, it is, according to my experience, almost impossible to make perfect contact over large surfaces without recourse to additional pressure, and for this purpose it is my habit to use by preference a bandage. By its use and by firm pressure a much higher ampérage can be borne than when the pressure is not employed.

The novel features which it is here desired to emphasize are:

1. The recognition of the fact that water is the true electrode.

2. The use of sufficient thickness of cotton or linen cloth to permit the even distribution of the current.

3. The thorough saturation of the layers of cloth in contact with the cuticle for the purpose of ensuring the best possible contact.

4. The employment of an animal membrane under the pad, designed to minimize the local action upon the cutaneous surface.

5. The use of pressure to obtain more perfect contact over the whole surface, and thus permit of using a greater ampérage.

Discussion.

Dr. Massey said he had not yet found an electrode equal to clay, which, when properly wetted, adapts itself thoroughly to the surface to which it is applied, and requires no pressure to keep it closely in contact with that surface. If fine, white China clay be employed, it enters into the very crevices of the skin. Clay being alkaline, lessens the resistance of the electrode itself, even when of considerable thickness, and the alkalinity may be of possible utility in helping to saponify the oil contained in the cuticle. To be at its best, the clay should be made over fresh at least every morning, and more often if many cases are to be treated. The speaker said he had also obtained excellent results from the use of pads made of thin cheese-cloth with some elastic material, like cotton wool. Instead of a metal plate, he prefers a flat spiral of wire, the turns of which are about half an inch apart. This arrangement adapts itself to the electrode much more perfectly than any metal plate can possibly do. The most important point, is the use of soap on any electrode, and no matter how good the electrode, there will be less discomfort when it is covered with a good lather.

Dr. Mosher, of Brooklyn, said she wished once more to call attention to her Indian meal poultice electrode. The softer variety of meal is cooked, and then placed in a double cheese-cloth bag of the size of the metal plate to be used, and the meal, while quite warm, is placed on the abdomen, and allowed to remain there for several minutes before beginning the treatment, in order that the warmth and moisture may have time to act upon the skin, and render it a better conductor. The metal plate is then laid upon the back of the meal, and if more pressure is desired, this can conveniently be obtained by the use of a small sand-bag. Very high currents can be passed through this electrode with very little discomfort to the patient. When lighter currents only are used, she employed a pad of from four to ten layers of cotton flannel, placed evenly over the surface. The meal poultice applies itself even more closely than the clay to the surface, and patients who have both forms of electrode used on them, express a very decided preference for the meal electrode.

Dr. Anna Galbraith, of New York, said that a stabile electrode similar to the one described in the paper had been in use for sometime past at the New York Orthopedic Dispensary. She preferred to wrap the wire gauze electrode in a number of pieces of linen, and this was pressed against the surface by means of a band of tennis belting, buckled tightly to the person. This belting was superior to chamois leather, as the latter shrunk, and became uneven. For the negative pole, she used cotton wrapped over the metal, and then covered with lint. The clay electrode while admirable in itself, was found not suited to dispensary practice.

Dr. Goelet thought he had solved the problem of furnishing a satisfactory clay electrode. The clay when the consistency of putty is first rolled into a flat cake, then covered with "lintine," which is compressed absorbent cotton, then covered with gauze, and backed with rubber. By thus covering the clay with cotton it does not soil the surface to which it is applied as does the unprotected clay. The neutral

plate, which consists of wire gauze, is placed on the back of the clay cake and the binding post penetrates its several layers of coating. After being thoroughly wetted, this pad is placed on a zinc vessel containing warm water. It can be easily cleansed by washing with soap, or if the covering becomes stained, it can be bleached with a solution of the peroxide of hydrogen.

Dr. Robinson, of Albany, preferred wire gauze, as it was neither too stiff, nor too flexible for easy manipulation. The wire gauze can be nickel-plated, and then kept in sheets ready for use. When wanted, it is covered with three or four thicknesses of flannel, and for strong currents, with cotton batting or "lintine." It was certainly the best electrode he had ever used where currents of moderate intensity only were required.

Dr. Rockwell said that after trying many kinds of electrodes, he had finally adopted the plan of keeping a large quantity of clay in a dish. The middle of the mass of clay was scooped out, and the hole filled with water. When an electrode is wanted, a sufficient quantity of clay is removed from the mass, and wrapped in a towel to remove superfluous moisture, after which, it is rolled to the proper size. With this electrode, he could always use a current of 75-100 milliamperes without causing pain. For still stronger currents, the clay should be enclosed in gauze or tarlatan, and in winter, it is desirable to keep the electrode on a warming pan, as suggested by Dr. Goelet.

Professor Houston asked if anyone had tried increasing the conductivity of the clay by mixing it with graphite.

Dr. W. T. Bishop said that the main object was to secure proper conductivity, and this was done by having the electrode moist; but it must be evenly moist, and of uniform thickness. As prepared by many operators, it varied greatly in thickness and consistency. Unless the metal plate is made to cover the entire surface there must be some points where the current is more dense than at others, and to that extent the efficiency of the electrode was destroyed. A thoroughly moist electrode consisting of clay mixed with graphite would probably cause the best diffusion of the current. Dr. Mosher's suggestion was also an admirable one.

Dr. Massey was not favorably impressed with the suggestion to add graphite, first, because it would make the electrode very dirty, and secondly, and more important, because one of the objects of a conducting joint between the metal and the skin is to modulate the passage of the current. Probably the most perfect electrode would be a piece of fresh meat, as we wish to transfer the current from the metal to the skin without too sudden a change in the resistance. The preparation of his clay electrode was delegated to the office nurse, who carefully kneaded the clay with her hands before making it into a pad of the required size. Mosquito netting was placed under the clay, and sometimes he placed on the top of the clay, instead of the spiral, a lead plate, cut in the shape of a Maltese cross. Where there are scratch-marks, or pimples on the skin that portion of the plate over there is raised a little.

Dr. Mosher said that she protected such sensitive spots, and very often, the navel also, by slipping a glass microscope slide underneath this part of the plate.

Dr. Dickson described an electrode which he was endeavoring to construct in such a way as to be free from the disadvantages connected with other electrodes. His idea was to use a large rubber cup filled with absorbent cotton moistened with some saline solution, and to make metallic connection by means of tin or lead cut in various shapes.

The President said that in the construction of an electrode it was important to remember that the removal of the point of metallic conduction from that of electrolytic con-

duction, diminishes the pain: A piece of fresh meat was probably the ideal electrode, as regards conductivity.

Professor Houston remarked that Dr. Dickson could easily have a metallic coating deposited on his flexible diaphragm.

Dr. Massey said this would be quickly destroyed when used as the external positive pole, and the metal would be carried into the patient's body. At one time, when experimenting with flexible plates, he had used a piece of Turkish toweling, thoroughly wetted, on which was placed a lead plate. This was used as a dorsal electrode on a case of alcoholic paralysis which he was treating at that time, and it was his custom to keep one such electrode for each patient. After some months of treatment, he was surprised to find that this electrode had been greatly diminished in size. Of course, a good deal of the metal was caught in the towel, but it was probable that an appreciable portion also found its way into the patient.

Dr. Nunn in closing the discussion, said that the sole object of his paper was to elicit a discussion on this important subject. He had found the electrode described in his paper, very well adapted for rapid office work. After trying various animal membranes, he had found chamois leather the best. The unhandiness of the clay, and the difficulty of getting it evenly mixed, had been well brought out in the discussion. Dr. Mosher's meal poultice was a capital idea. Electrodes of clay mixed with graphite had at one time been in the market, but he could not recall by whom they were manufactured. To protect scratch-marks, and other sensitive spots, he applied small bits of rubber tissue. The hollow electrode described by Dr. Dickson, is very similar to the one devised by Dr. Franklin Martin.

(To be continued.)

DOMESTIC CORRESPONDENCE.

The Code of Ethics.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

For more than forty years the writer, from frequent perusal and constant familiarity with the "Code of Ethics" as originated by Percival and amended by the American Medical Association, has been led to regard it as the embodiment of the wisdom of the profession touching their relations to themselves and to their fellowmen; and he cannot but feel profound misgivings at the proposition now under discussion to abolish that time-honored instrument and to substitute therefore a so-called modernized code, adapted, it is alleged, to the assured needs of the profession, and conformed to the requirements of precision and brevity. Conciseness in a rule of action for the guidance and government of the busy multitude is a desideratum to be had at any cost short of obscurity, and this is especially true when the law is upheld by the authority of legislative enactment; but when its sanction rests solely on the consent of the governed, the *raison d'être* should be distinctly stated and not promulgated in the tone of autocratic dictation.

There are few men competent to form an opinion on the literary merits of a paper who, after careful and impartial reading of the Code, would not admit that as a specimen of English "pure and undefiled" it does honor to the scholarship of its authors. Its style is perspicuous without dogmatism, copious without redundancy and elegant without pedantry. Its tenets have no flavor of magisterial assumption but are formulated in reason and justice, so plainly set forth that the "wayfaring man, tho' a fool, need not err therein." The writer desires only to express his hearty approval and unqualified endorsement of "Conservative" in the ground he has so admirably maintained, in his contributions to THE JOURNAL of Dec. 10, 1892, and January 14, 1893.

A. N. TALLEY, M.D.

Columbia, S. C., February 10, 1893.

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SATURDAY, FEBRUARY 25, 1893.

TUBERCULOSIS OF THE FEMALE GENERATIVE ORGANS.

The Johns Hopkins Hospital Reports, Vol. III, Nos. 1, 2, 3, contains an article by DR. J. WHITRIDGE WILLIAMS, in which the subject of tuberculosis of the generative organs of woman is presented in its entirety. There are many points of interest to all physicians brought out by this thorough study and among them we would refer especially to the undoubted frequency of genital tuberculosis which appears to be far greater than was ever suspected and the disease consequently deserves more practical attention on the part of the gynecologists. DR. WILLIAMS found genital tuberculosis seven times in ninety-one cases in which the tubes and ovaries were removed for purulent process or for adhesions; in other words, genital tuberculosis may be expected to occur in about one out of every twelve operations for the removal of tubes and ovaries the seat of past or present inflammatory disease; in only two out of the seven cases was the disease recognized at the time of the operation, so that in 70 per cent. of these cases the disease would have escaped observation were it not for the routine examination practised with the microscope; it will consequently become evident that up to this time most of the statements as to the frequency of genital tuberculosis represent only one quarter of the actual number of cases, the other three quarters having previously escaped attention. The order of frequency for the various portions of the genital tract is as follows: tubes, uterus, ovaries, vagina, cervix, and vulva; for obvious reasons a definite, numerical statement as to the actual comparative frequency in these various parts cannot yet be made.

There are also certain points in the etiology of female genital tuberculosis to which the observations and literary researches of DR. WILLIAMS call particular and emphatic attention. He shows that generally speaking tubercle bacilli may gain entrance to the

genital tract in three ways: 1. From areas of tuberculosis already existing in the patient; 2. from the outer world by direct infection; and 3. by bacilli from the excretions of tuberculous patients invading the genital tract as in cases of tuberculosis of the urinary organs or intestines. With reference to the first mode of infection mentioned, the following general statement summarizes fairly well what is said on that point: The majority of cases of female genital tuberculosis are secondary to tuberculosis elsewhere in the body, and are due either to infection from the blood or from neighboring organs.

The question as to direct infection from the outer world is one of great interest. Tubercle bacilli are universally distributed and they may gain access into the vagina in a multitude of ways: by the examining finger, the use of dirty instruments, of foul syringes, of unclean linen, and in many other ways, but particularly by coitus with men affected with various forms of uro-genital tuberculosis. The frequency of this disease in all parts of the genito-urinary tract in men suggests opportunity for infection; and from the investigations of JANÉ we have a right to believe that in some instances phthisical men might introduce bacilli into the vagina without any tubercular lesions of their genitals. In spite of numerous reported cases of suspected infection by coitus, its occurrence cannot as yet be considered as proven by scientific methods, and scientific proof is manifestly very difficult to bring forward in this instance because the possibility of infection from the blood can never be positively excluded. Owing to the resistant structure of the healthy vagina and the cervix, and to the periodical menstrual exfoliation of the uterine mucosa, we would naturally not expect the disease to develop in these parts as readily as it would in the tubes, to which the bacilli might be carried by the lymphatics from vaginal abrasions or directly through the uterus. Such reasoning as this would serve to explain why the tubes are so much more frequently affected than the uterus, even in primary cases. The occurrence of infection by coitus, though not conclusively demonstrated as yet, is nevertheless very probable, and, of course, if infection in this way holds good for women, it also applies to men, and the family physician should consequently prohibit coitus between persons, one of whom has genito-urinary tuberculosis. DR. WILLIAMS also considers fully the clinical history, the diagnosis, and the treatment of tuberculosis of the female genital organs, and we feel sure that his excellent presentation of this interesting subject in all its aspects will do much good because it will rescue the study of female genital tuberculosis from the neglect at the hands of gynecologists, writers, and teachers into which it appears to have fallen on account of the supposed rarity of its occurrence.

RITUALISTIC CIRCUMCISION.

At a meeting of the Berlin Dermatological Society in 1892, DR. LEWIN spoke on the subject of ritualistic circumcision and its therapeutic indications. He stated that the prepuce is not a very favorable ground for infection, being thick, elastic, and not easily torn; as it contains parallel muscular and some elastic fibres, it is mobile and extensible to double its volume. It has neither sudoriparous glands or hair, and its sebaceous glands serve to maintain the suppleness of the skin. Being of inconsiderable volume, ulcers do not penetrate it deeply, and it is rarely the seat of a gangrene for which it need be amputated, and any mode of treatment may be employed for its diseases.

The other portions of the penis are less favorably formed for treatment; the glans, containing few elastic fibres, is neither mobile or extensible, and ulcers occurring therein are prone to pursue a destructive course. The retro-glandular furrow is easily torn or fissured, the numerous sebaceous glands opening therein form reservoirs for the retention of the secretion, and sixty per cent. of the cases of ulcer that are situated on this portion of the penis are followed by buboes. The frenum is less favorable for the development of ulcers, but it is easily torn.

If the prepuce is amputated the glands of TYSON dry up, the fat of the internal surface is lost and a resistant cicatrix remains.

In no part of the Bible is circumcision referred to as a sanitary procedure, nor was that suggestion of its desirability made until a much later epoch than that of the writing of the Scriptures. In the beginning, circumcision was nothing more than a legacy from the heathen cult of Moloch.

In a thousand cases of ulcer of penis treated by LEWIN at the Berlin Charité, almost fifty per cent. were on the prepuce, nineteen per cent. on the glans, fifteen per cent. on the corona, nine per cent. at the meatus, and the remainder on various portions of the penis.

DR. SAALFIELD believed that LEWIN's statistics showed that the prepuce was a *locus minoris resistentiæ*; besides erosions thereon, the accumulation of smegma favored balanitis, and both these predisposed to infection.

DR. ROSENTHAL remarked that as in erection the prepuce was retracted and everted, the other portions of the penis being uncovered as well, the least resistant portions would be affected. It would therefore be interesting to know what proportion of venereal ulcers occurred on the internal surface of the prepuce.

To these criticisms LEWIN replied that the internal surface was often affected because it projected somewhat during erection; but the reason that the prepuce was so often the seat of venereal ulcers was because

infection occurred during coitus from lesions most frequently located on the labia majora and minora and not on the cervix uteri. The statistics he gives seem to show that the prepuce is a rather favorable ground for infection, though if evidence could be obtained regarding the site of lesions in an equal number of circumcised and uncircumcised persons, it would be possible to judge more definitely regarding the value of circumcision as a prophylactic operation.

From a religious standpoint it is a relic of barbarism, and from a medical standpoint PROFESSOR MASTIN has shown the unfortunate anatomical changes it induces, while the physician must remember that for him to recommend it from a prophylactic standpoint is tantamount to advising illicit and promiscuous sexual relations.

CHOREA.

The *questio revata* as to the pathology of chorea appears to receive a satisfactory solution in the admirable clinical lecture of PROFESSOR H. C. WOOD, of Philadelphia, appearing in another column, which has been reported exclusively for THE JOURNAL; and which we do not doubt will be fully appreciated by our readers. Hitherto, the important physiological function of inhibition, which BROWN-SEQUARD cited so effectually in support of his theory of the causation of cerebral convulsions and paralysis, has been entirely overlooked in studying the pathology of spinal affections. This is the more remarkable since the fact of the independent action of the spinal cord as a reflex centre has been known since the days of MAGENDIE and JOHN HUNTER. Up to the present time, however, Dr. WOOD's theory is the first application of this well known physiological observation to explain the phenomena of functional nervous disease. As Dr. WOOD has pointed out, this explanation will apply in hysteria as well as in chorea, neither of which is attended by increased motorial excitement in reality, but by decreased inhibition. The form of chorea due to disease of the cortical motor centres in the brain, of which the lecturer gives a good illustration, is, properly speaking, no chorea at all, but is merely a symptom of cerebral disease, and is analogous as a symptom to the muscular motions of paralysis agitans or post-paralytic tremor. The disease known as chorea, or St. Vitus' dance, appears to be spinal in its origin, and therefore may be, and very probably is, due to deficient inhibition and overflow of motor impulses. If time shall confirm this theory, which is certainly logical, and so far has been supported both by experiment and clinical observation, we shall have to congratulate PROFESSOR WOOD upon his valuable discovery, and our readers upon receiving its first public announcement in medical literature.

THE AMŒBA COLI: ITS RELATION TO DYSENTERY AND TROPICAL SUPPURATIVE HEPATITIS.

In the *Indian Medical Gazette*, for November, 1892. SURGEON-CAPTAIN PATRICK HEHIR, of Hyderabad, gives the results of some of his studies on the organisms found in tropical dysentery and hepatic abscess. He is particularly fortunate in being located in a region in which these affections are very prevalent. As causes of the epidemic of dysentery which he observed he mentions 1. The amœba coli; 2. Malaria; 3. Exposure to sudden vicissitudes of temperature; 4. Putrefaction of animal matter, especially that of human ordure; 5. Infection from other cases of dysentery; 6. Mechanical and other engorgement; and 8. *Bacillus dysentericus*. In the evacuation of dysenteric patients the amœba coli was found frequently, but not invariably; and it was also found in other bowel affections, as the mucus enteritis of infants, simple diarrhœa, and in some cases of catarrhal inflammation of the rectum, due to engorgement. The *bacillus dysentericus* found by HEHIR, and considered pathogenic, was found associated with the amœba coli, and is described as a short, straight bacillus, usually of a length about equal to one-third the diameter of a red blood corpuscle, with rounded ends sometimes jointed, rarely curved. These bacilli were sometimes present in vast numbers. They were sometimes found in the substance of an amœba coli, and when lying in the vacuoles of the amœba they could be easily seen. They stained well with methyl blue. No culture experiments with this microbe are recorded. This bacilli was often found in the pus of liver abscesses; but in four cases in which he was able to demonstrate the amœba coli in aspirated peritoneal fluid, HEHIR failed to find his *bacillus dysentericus*.

Since he has succeeded in demonstrating the amœba coli in the peritoneal effusion of suppurative hepatitis following dysentery; HEHIR is strongly in favor of the views of COUNCILMAN, who maintains that one mode of liver infection from dysentery is brought about by the amœba passing through the walls of the diseased bowel, and across the peritoneal cavity to the liver. In fact, he believes that this direct infection is the chief importance in the production of liver abscess of amoebic dysentery, rather than the infection by means of emboli along the blood or lymph streams.

THE PERSONNEL OF STATE MEDICAL EXAMINING BOARDS.

It is with pleasure that we notice the attempt at medical legislation in the different States and that the excellent Minnesota law is taken as the basis, as it has proven itself exceptionally effective.

Several legislatures have before them bills closely following the lines mapped out in Minnesota. We

read with regret however, that there is much opposition in certain quarters in reference to the composition of the board. After much thoughtful consideration, at the time of the passage of the Minnesota statute, it was deemed expedient to make the board entirely free from the influence of any medical school. It, therefore, made any member of a medical faculty ineligible to membership on the Board of Medical Examiners. Time has proven the wisdom of the framers of the law, in insisting on this provision. We would strongly urge that this provision be included in all the statutes, and trust that in further reflection the opposition to this proviso will cease.

It is undeniable that a board with no member of any medical faculty should be non-partisan. There can be no reason for a bias in favor of any school. Such a board will also have less occasion for friction. The profession at large will have more confidence in such a board and last but not least the general public will have less occasion for twitting us with attempting class legislation if they can be assured that it is wholly non-partisan.

The membership of these boards is of vital importance to the successful working of the law, secondary only to the provisions of the law itself. It should be a matter of profound regret, if, after success in the passage of a law, its provisions should be partially nullified by a non-harmonious board.

A wholly disinterested board except as to the personal qualifications of each candidate—a board which has no interest in the record made by the graduates of any particular school or medical college—such a board, we maintain is a desideratum. A board constituted in any other manner, we fear, will jeopardize success. The more one studies the question, the more confident one becomes, that the greatest factor in the successful execution of these medical laws is the entire divorcing of Examining Boards from any and all medical schools.

PAN-AMERICAN MEDICAL CONGRESS, SECTION OF MILITARY MEDICINE AND SURGERY.—The following gentlemen have been duly appointed members of the Advisory Council of this Section: Col. Louis Read, M.D., Surgeon-General N. G., Pa.; Newton L. Bates, M.D., Medical Director U. S. N.; J. H. Tryon, M.D., Medical Inspector U. S. N.; Lieut.-Col. Eustathius Chancellor, M.D., Medical Director N. G., Mo.; Bryt Lieut.-Col. A. A. Woodhull, M.D., Surgeon U. S. A.; Major Jos. H. Corson, M.D., Surgeon U. S. A.; Major Geo. Henderson, M.D., Medical Director N. G., D. C.; C. N. Hoagland, M.D., Ex-Surgeon Ohio Vols.; Bedford Brown, M.D., Ex-Surgeon C. S. A.; H. C. Goodman, M.D., Ex-Surgeon U. S. Vols.; Melancthon Storrs, M.D., Ex-Surgeon Conn. Vols.; O. D. Ball, M.D., Pension Ex-Surgeon, Albany, N. Y.; Capt. H. O. Perley, M.D., Asst. Surgeon U. S. A.

GEO. M. STERNBERG,

Deputy Surgeon-General U. S. A., Pres. of Section.

A BOARD of officers will be convened at Washington, March 30, 1893, for the purpose of examining applicants for admission to the grade of Assistant Surgeon in the U. S. Marine-Hospital Service.

Candidates must be between twenty-one and thirty years of age, graduates of a respectable medical college, and must furnish testimonials from responsible persons as to character.

The following is the usual order of the examination: 1, physical; 2, written; 3, oral; 4, clinical.

In addition to the physical examination candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate.

The examinations are chiefly in writing, and begin with a short autobiography by the candidate. The remainder of the written exercise consists in examination on the various branches of medicine, surgery and hygiene.

The oral examination includes subjects of preliminary education, history, literature, and natural sciences.

The clinical examination is conducted at a hospital, and where practicable candidates are required to perform surgical operations on the cadaver.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order, as vacancies occur.

Upon appointment the young officers are as a rule first assigned to duty at one of the large marine-hospitals, as at Boston, New York, New Orleans, Chicago or San Francisco.

After four years' service, Assistant Surgeons are entitled to examination for promotion to the grade of Passed Assistant Surgeon.

Promotion to the grade of Surgeon is made according to seniority, and after due examination as vacancies occur in that grade. Assistant Surgeons receive sixteen hundred dollars, Passed Assistant Surgeons eighteen hundred dollars, and Surgeons twenty-five hundred dollars a year. When quarters are not provided, commutation at the rate of thirty, forty, or fifty dollars a month, according to grade, is allowed.

All grades above that of Assistant Surgeon receive longevity pay, 10 per centum in addition to the regular salary for every five years' service up to 40 per centum after twenty years' service.

The tenure of office is permanent. Officers traveling under orders are allowed actual expenses. For further information, or for invitation to appear before the board of examiners, address:

WALTER WYMAN,
Supervising Surgeon-General,

U. S. Marine-Hospital Service, Washington, D. C.

GERMANY AND THE PAN-AMERICAN MEDICAL CONGRESS.

AN OPEN LETTER FROM PROFESSOR CZERNY, OF HEIDELBERG, AND REPLY BY SECRETARY-GENERAL REED.

(Translated from *Deutsche Medicinische Wochenschrift*, Jan. 12, 1893, p. 47.)

AN OPEN LETTER

TO CLAUDIUS H. MASTIN, M.D., LL.D., Mobile, Ala., President of the American Surgical Association, in reference to the Pan-American Medical Congress:

Honored Sir and Colleague,—You were kind enough to extend to me, December 3, 1892, a personal invitation to attend the Pan-American Medical Congress, to be held at Washington, September 5 to 8, 1893. According to the preliminary announcement, and to your communications, the Congress, in connection with the Columbian exposition at Chicago, will offer so many attractions that I exceedingly regret not to be able to accept so amiable an invitation extended to me by one of the most prominent members of the body of American physicians.

As the reasons which prevent me from attending might be of interest to the German physicians, you will certainly pardon my desire to make these reasons more generally known in this manner.

At the first glance, one might have been impressed with the idea that the Pan-American Congress was intended to be a rival to the long-prepared International Medical Congress, which is to be held at Rome, from September 24 to October 1, 1893. However, as at the former international expositions, almost always contemporary medical and scientific congresses took place, it appears but just that the American physicians should also avail themselves of the opportunity of meeting on their own continent. But since the physicians of all civilized countries are united in the humane endeavor to rather mitigate than to increase difficulties between nations and continents, where such exist, I, therefore, think any intention to injure the International Congress by the Pan-American, must be entirely excluded.

Perhaps the meeting of the International Congress might be postponed eight days, which, for several reasons, would be more desirable. With earnest intentions and favorable weather, it ought to be possible to make the trip, with the modern fast steamers, from Washington to Rome, from September 9 to September 23. *It would not be a bad idea if those members who desire to make the journey would do so jointly, directly from Washington to Rome, on a steamer chartered expressly for that purpose, in order to bring the greetings of the rising capital of the promising West to the old Metropolis of European civilization.*

A more serious consideration to visit the Pan-American Congress is entertained by me regarding the question of languages. In section 9 of your programme it says: "The language of the Congress shall be Spanish, French, Portuguese and English." The German language is probably excluded because it is nowhere official language in America. If this consideration should have prevailed, then the Dutch and Danish languages ought to have been permitted, since these languages are in official use in America. Be this as it may, *I do not think that the physicians of Germany can take part in the proceedings of the Pan-American Medical Congress, if they are not permitted to read their papers in German*, while any other language but the English is admitted at the Congress. It must be remembered that also at the International Congress "Remarks are permitted in any other language, if any of the members are willing to translate them into one of the four official languages."

I shall not mention the work done continually for the science of medicine in the German language, but I desire to refer to the great number of prominent American physicians who have received the best part of their education in German schools; and to the numerous German physicians who practice with success in America, and who have added so much to the great reputation in which American medical literature is at present held in the whole world. Indeed, I am inclined to believe that North and South American physicians will frequently be able to communicate with each other in the German language, learned by them in our universities. If I am not mistaken in this, I certainly think that the Executive Committee of the Pan-American Medical Congress should pass a resolution which would enable German physicians to visit the Congress, provided a participation on our part is at all desired.

I shall be exceedingly gratified if my suggestions should find favor on the other side of the ocean; and if I should be thus enabled, dear Sir and colleague, to personally enter into friendly relations with you in Washington.

With best wishes and compliments of the season, I am,

Yours respectfully,

DR. CZERNY,

Honorary Member of the American Surgical Association.
HEIDELBERG, December 28, 1892.

(REPLY.)

THE PAN-AMERICAN MEDICAL CONGRESS,
Office of the Secretary-General,
311 Elm Street.

CINCINNATI, February 14, 1893.

PROFESSOR V. CZERNY, Heidelberg:

My Dear Doctor,—My distinguished colleague, Dr. C. H. Mastin, has referred to me for official reply your open letter addressed to him and published in the *Deutsche Medicinische Wochenschrift*, for January 12, of this year.

A careful reading of your valued communication leads me to the conclusion that you in common with other distinguished German *savants*, hesitate in accepting an invitation to attend the Pan-American Congress, because the

German profession is not officially invited by the Executive Committee to become a constituent part of the Congress; 2, because the German language is not one of the official languages of the Congress, and 3, because a general participation on the part of yourself and conferees might be construed into disloyalty to the International Medical Congress which is to meet in Rome, in the same month.

In reply I beg to state, that the occasion for holding a medical Congress in the United States in 1893, is the fact that a large number of physicians will be in this country in attendance upon the World's Columbian Exposition. This attendance will be largely, although not by any means exclusively, from the countries of the Western Hemisphere. It would have been very desirable indeed, to have arranged an organization which would have embraced all the countries of the world. The medical profession of the United States, however, acknowledges allegiance to the World's International Congress which is to meet in Rome. To have attempted an organization in Germany or any other European countries in the interest of the American meeting, would have been in violation of our loyalty to the International Congress, while an official invitation to the government and medical societies of Germany and other European countries to send delegates to the Washington meeting would have been almost inimical to the interests of the Rome Congress. It was, therefore, resolved that the organization should be limited to the American countries, and that while it was desirable to secure the attendance of our distinguished conferees from Europe as guests, invitations to that end should be strictly personal in character, and should be issued by the general officers and presidents of sections, at their discretion.

The languages chiefly spoken by the various constituent countries of the Congress are Spanish, Portuguese, and English, and these were accordingly selected by the Committee as the official languages of the Congress. French, which the language of important colonies and communities, was subsequently added, at the instance of our conferees in Brazil, who employ it largely in scientific communication, as, indeed, do a large proportion of the physicians of both the English and Spanish-speaking countries. Danish and Dutch are not included, simply for the reason that it is extremely, indeed, practically impossible, to deal with them satisfactorily in a literary way in this country. It was hoped that delegates from countries and colonies speaking other than Spanish, Portuguese, English and French, would furnish their remarks on papers in one of the official languages. This was so thoroughly understood by the committee and has become such a well established usage at international congresses, that it was not deemed necessary to state it explicitly; but I shall communicate the suggestion which you kindly make to the Executive Committee, when I have no doubt it will be made definite in the By-Laws.

As early as December, 1891, I opened correspondence by telegraph with the President of the XI International Congress, and subsequently with Professor Maragliano, of Genoa, the Secretary-General, asking that the date of the Rome meeting be arranged so as to permit us to send delegates from Washington. The date of the International Congress was accordingly changed from the 17th to the 24th of September, which will give us sixteen days in which to go from Washington to Rome. Arrangements were begun in February of last year for a special sailing of a steamer September 9th, direct to Italy, by way of the Azores and Gibraltar to take those desiring to attend the Rome meeting, a special reduced rate being accorded for the occasion. My present correspondence indicates that a large number will avail themselves of this privilege. It is highly gratifying to note that the expediency of this plan has occurred quite independently to one so conversant with affairs as yourself.

Permit me to say in conclusion that our European conferees who may honor the Pan-American Medical Congress with their presence will be accorded every linguistic privilege, that arrangements have already been made for their return to Italy in time for the International Congress, and that in the event of their coming they will be greeted with a most cordial American welcome.

Very sincerely yours,

CHARLES A. L. REED,
Secretary-General P. A. M. C.

Approved:

WILLIAM PEPPER, President.

CLAUDIUS H. MASTIN, Member of the Board of Trustees.

NECROLOGY.

W. W. Dawson, M. D.

It is our mournful duty to record the death in Cincinnati, Feb. 16, of Dr. William W. Dawson, a Trustee of and Ex-president of the American Medical Association.

Born in Berkeley County, Virginia, Dec. 19, 1828. While a child his parents moved to Green Co., Ohio, where he received a good classical education. Later he became a student of medicine in the office of an elder brother, the late Dr. John Dawson, and attended lectures in the Medical College of Ohio, where he graduated in 1850. He served one year in the Commercial Hospital as an interne, and two years after leaving the hospital was chosen professor of Anatomy in the Cincinnati College of Medicine and Surgery, holding this position for three years. From 1860 to 1864 inclusive, he occupied the chair of Anatomy in the Medical College of Ohio. From 1864 to 1870, he as a member of the surgical staff lectured on clinical surgery in the Cincinnati Hospital, and in 1870, was chosen professor of surgery in the Medical College of Ohio, lecturing there until 1884, when he resigned the didactic part of his professorship, and continued his clinical lectures until the beginning of his fatal illness.

In 1869, Dr. Dawson was elected president of the Cincinnati Academy of Medicine, and two years later president of the Ohio State Medical Society. In 1871, he was appointed surgeon to the Good Samaritan Hospital. During all his professional life he enjoyed a large and remunerative practice, and in 1888, as a crowning glory of his professional career, he was elected president of the American Medical Association. The succeeding winter he suffered from a severe attack of the gripe, and had a number of relapses. Those who were present at the Newport meeting of The American Medical Association will remember his affliction at that time, and when those who were intimate with him prognosticated the fatal termination which has just taken place.

Dr. Dawson was much more than a good surgical operator, his diagnostic ability and knowledge of pathology was not excelled in his day. His loving kindness to those who sought his services will never be forgotten. His generosity and open hearted hospitality was without bounds. While on all occasions he was the highest type of nobility in his profession. Courteous to all and the very soul of honor. No man ever feared professional poaching or unfair treatment from Dr. W. W. Dawson. His personal friends were almost as numerous as the inhabitants of his city. He was truly one of Nature's most loveable noblemen. We ne'er shall see or know his like again.

Dr. James Bell.

Dr. James Bell, an ex-president of the Kansas Medical Society, member of the American Medical Association and of the Ninth International Congress, died at his home in Olathe, Kansas, Jan. 13, 1893.

Dr. Bell was born in Washington, Pa., in 1826, of Scotch-Irish ancestors. In his early life his parents moved on a farm in Mahoning Co., Ohio, where, while yet a youth, his mother was left a widow with 18 children. With the pluck of his race he assisted in raising the family, obtained a fair education, and when 28 years old graduated at the medical department of the Western Reserve University, and commenced practice at New Concord, O., where he continued until 1869, meanwhile spending a winter in Philadelphia and graduating from Jefferson in 1864.

In 1869 he moved to Olathe, Kansas, where he remained in practice to the time of his death. He was twice married

and leaves a widow and four children. The doctor was a Scotch Presbyterian and sufficiently tenacious of his views, both medical and religious, to become a martyr or to make martyrs, but during his last illness, which was quite prolonged, from yellow atrophy of the liver, he adopted that broader charity that forgives as it would be forgiven, and accords to others what it reserves to itself, the right of individual belief, and died at peace with God and man, and in the hope of a glorious immortality.

DR. WILLIAM B. DAVIS, of Cincinnati, died at his home in that city February 16. The cause of death being a heart lesion superinduced by an attack of grippe two years ago. Dr. Davis was born in Cincinnati July 2, 1832, his academic education was obtained at Woodward and Delaware Colleges, and his professional courses were taken at the Miami and Ohio Medical Colleges. During the War he served for a brief period as surgeon of the 137th, O. V. I. Reg., after which he spent some time in Europe. On his return he was elected Professor of Materia Medica in the Miami Medical College. This chair he held for a number of years.

Dr. Davis was the author of many papers which were read before the local medical societies, the Ohio State Medical and the American Medical Association. His two last contributions were read at late meetings of the latter body and on the subject of albuminuria in its relation to renal affections, attracting unusual attention.

Dr. Davis was a man of much public spirit, serving his city as a member of the Board of Education, as one of the founders of the Public Library and Director of the Cincinnati University. From its organization he was one of the Medical Directors of the Union Central Life Insurance Company. From childhood he was an active member of the Methodist Episcopal Church, and to which he contributed largely of his means. Dr. Davis was a highly esteemed and influential citizen, a cherished and true friend, a beloved physician, and typical Christian gentleman.

BOOK REVIEWS.

THE MODERN ANTIPYRETICS; THEIR ACTION IN HEALTH AND DISEASE. By ISAAC OTT, M.D. Second Edition. Paper. Easton, Pa.: E. D. Vogel. 1892.

The large amount of valuable information incorporated in this little volume of 125 pages deserves a better dress than is afforded in its present unpretentious and modest form.

The author's contributions to this branch of pharmacological investigation are well known, and give increased importance to his views. The work is subdivided under the heads: Heat, Thermotaxic Apparatus, Cortical Thermotaxic Centers, Heat Production in Normal and Febrile State, Fever, Physiological and Pathological Action (of antipyretics), Chemistry and Therapeutics of the Modern Antipyretics, with a closing chapter on the Value of Antithermics in Typhoid Fever. It will here be seen that the subject is discussed in a scientific and logical manner, and with the author's rich experience as an experimental physiologist, the work assumes a very practical character.

Now that so many new antipyretic agents become available, it certainly behooves the thoughtful physician to inquire into the chemistry and pharmacology of his favorite antithermic drug. He will find a concise and practical summary of the subject in this little book. Then too, the experimental physiologist and pharmacologist will find much valuable data between the unassuming covers of Dr. Ott's work.

MISCELLANY.

THE GOVERNMENT OF VENEZUELA AND THE PAN-AMERICAN MEDICAL CONGRESS.—Señor P. Ezequiel Rojas, the Venezuelan Minister of Foreign Affairs, has forwarded on behalf of his government through the U. S. *Chargé d'Affaires* at Caracas, a formal acceptance of the invitation issued pursuant to the joint resolution of the United States Congress to the various governments of the Western Hemisphere to send official delegates to the Pan-American Medical Congress. The selection of delegates has not yet been made, but the names will be forwarded at the earliest possible moment.

COMMENCEMENT OF THE MEHARRY COLLEGE.—The seventeenth annual commencement of the Meharry Medical Department, of Central Tennessee College, Nashville, Tenn., was held at the Gospel Tabernacle, Feb. 7, in the presence of an audience of more than three thousand people. There were thirty-six graduates in Medicine, two in Dentistry, and six in Pharmacy.

During the past session one hundred and twenty students in medicine, seven in dentistry and twenty-one in pharmacy were enrolled.

About one-half of the educated colored physicians of the Southern States are graduates of this institution.

THE forty-second annual session of the Iowa State Medical Society will be held at Burlington, Iowa, Wednesday, Thursday and Friday, May 17, 18 and 19, 1893.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from February 11, 1893, to February 17, 1893.

First Lieut. Isaac P. Ware, Asst. Surgeon U. S. A., is granted leave of absence for one month.

Col. Joseph Smith, Asst. Surgeon-General U. S. A., is granted two months' leave, with permission to leave the United States.

Major J. V. D. Middleton, Surgeon, will in addition to present duties as post surgeon of the Presidio of San Francisco, Cal., perform the duties of Medical Director Dept. of California, during the absence of Col. Joseph R. Smith, Asst. Surgeon-General U. S. A.

First Lieut. Frederick P. Reynolds, Asst. Surgeon, is relieved from duty at Ft. Monroe, Va., and assigned to duty at West Point, N. Y. Par. 1, 2 and 4 of S. O. 34, A. G. O., February 14, 1893.

Capt. Eugene L. Swift, Asst. Surgeon U. S. A., the suspension of the order assigning him to Ft. Yates, N. Dak., is removed.

A board of medical officers, to consist of Col. Charles H. Alden, Asst. Surgeon-General U. S. A.; Lieut.-Col. George M. Sternberg, Deputy Surgeon-General U. S. A.; Major John Van R. Hoff, Surgeon U. S. A.; Capt. Guy L. Edie, Asst. Surgeon U. S. A., is constituted to meet in New York City on the 27th day of March, 1893, or as soon thereafter as practicable, for the examination of candidates for admission to the Medical Corps of the Army, and for such other business as may be brought before it.

First Lieut. Charles Willeox, Asst. Surgeon, is granted leave of absence for one month, with permission to apply for an extension of one month.

OFFICIAL LIST OF CHANGES in the Medical Corps of the U. S. Navy, for the Week Ending February 11, 1893.

Asst. Surgeon B. R. Ward, ordered to training ship "Richmond."

Surgeon George F. Winslow, ordered to the U. S. S. "Monterey."

P. A. Surgeon W. F. Arnold, ordered to the U. S. S. "Monterey."

Asst. Surgeon L. L. von Wedekind, ordered to examination preliminary to promotion.

Asst. Surgeon Geo. A. Lung, ordered to examination preliminary to promotion.

The Journal of the American Medical Association

VOL. XX.

CHICAGO, MARCH 4, 1893.

No. 9.

ORIGINAL ARTICLES.

EXPERIMENTAL UNION OF THE URETER AFTER TRANSVERSE DIVISION.

BY WELLER VAN HOOK, A.B., M.D.,
OF CHICAGO.

[*Preliminary Contribution.*]

Hitherto experimental surgery has not supplied the practitioner with a method by which the continuity of the ureter, when completely divided by transverse injury, could be restored. The brilliant case reported recently in full by Kuester,¹ in which the upper end of the ureter—the infundibuliform



FIG. 1.

portion—was excised to relieve obstruction, has been exceeded in ingenuity of conception by the work of Prof. Christian Fenger, in two cases reported at the meeting of the Chicago Medical Society held February 6, 1893. But these cases offer no suggestions to aid in the effort to unite the ends of the trans-

versely divided ureter when that injury occurs below the infundibulum. The experiments of Th. Tuffier,² who endeavored to accomplish this object by the application of sutures, are discouraging in the extreme. For even when union took place, the resulting scar contraction of course obliterated the lumen of the duct.

To obviate the necessity of making a line of sutures around so narrow a tube, the writer put in practice the following plan: The ureter of a medium-sized dog having been exposed and isolated at a point one inch above the entrance of the ureter into the bladder, the duct was cut across with scissors, and one-half inch of its extent cut out and discarded. The free end of the lower portion of the ureter was then closed by a ligature near the point of severance. Next a longitudinal slit about three-eighths of an inch long was made in the side of this portion of the

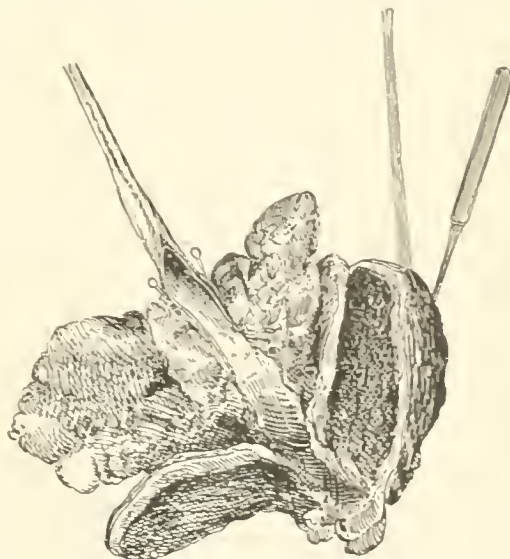


FIG. 2.

tube, about one-fourth of an inch below the ligature. A suture was passed through the wall of the upper fragment of the ureter, the opening of which had been enlarged slightly with the scissors. The point of the needle with which the suture was armed was passed through the slit in the lower portion of the ureter, and carried down the lumen of the tube, for a half inch, then pushed through its wall. By gentle traction the upper piece of the ureter was then invaginated into the lower portion, and held there by fastening the suture to the outer layer of the wall of the tube. Two delicate sutures were then passed at the ends of the slit in the wall of the lower portion, to favor rapid union, and the whole site of operation upon the ureter was carefully covered by a fold of the abundant omentum.

¹ Langenbeck's Arch., Bd. 44, S. 850.

² Étude Experimentales sur la Chirurgie du Rein, Paris, 1889.

The dog recovered with no ill effects whatever, and was killed twenty-six days afterward. There were no adhesions in the peritoneal cavity, except where the omentum had been sewed down. There was complete permeability of both ureters, as shown by the probe passing in Figure 1, through the ureters into the bladder. Upon laying open the right ureter, which had been the subject of operation, the mucous membrane was seen to be continuous, perfectly healed at the point of junction, and presenting no diminution of caliber. This lack of stricture formation was to be expected from the fact that the line of primary union was necessarily an oval, not a circle, corresponding to the shape of the slit as distended by the invaginating end of the ureter. The line of scar tissue must thus necessarily be long enough to more than accommodate the lumen of the ureter. The fact that one portion of the tube must enter the lumen of the other tube, does not constitute an objection to the method, since the lumen of the tube can be enormously increased by stretching, without prejudice to the integrity of its walls.

Figure 2 shows the right ureter laid open from a point one inch above the line of union to the cystic end of the ureter. Around the ureter is the piece of omentum used as a covering to the wounded surfaces. The left ureter appears smaller, because somewhat dried at the time the photograph was made.

As the method has been successful in the dog, it is to be expected that in man it will be more easy of application, since in the human subject the ureters are larger and more easy of access.

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HIP DISEASE.

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Treatment:—It is the function of a normal hip joint to permit of motion in several directions and to sustain the weight of the body, both during walking and while standing at rest, without injury to its structure. When a joint becomes diseased these functions become restricted or abolished, motion is no longer possible, or possible to only a limited degree, and the joint refuses to sustain the superincumbent weight for any prolonged period.

If we study the clinical evidences presenting at a hip joint, as it passes from health to disease and back to health again, we find them to be somewhat as follows: all the muscles, whose functions it is to move the thigh on the pelvis, gradually become more and more rigid from involuntary muscular spasm until all motion at the joint is abolished. The thigh becomes gradually flexed on the pelvis, and usually at first abducted (Fig. 5); later on as flexion increases it becomes adducted (Fig. 6), but in either case the position is such that in walking the full weight is not thrown upon the diseased member for more than a brief time at each step, and prolonged weight bearing, while standing at rest, is not possible.

The joint becomes more and more sensitive to the vibration of locomotion, weight bearing is no longer tolerated, and the patient takes to his bed. The leg in any case assumes the position of greatest comfort and the muscular spasm protects the joint which by this means becomes locked. As the patient drops asleep the muscular spasm relaxes somewhat, and, if the limb does not lie securely fixed, motion takes place at the joint, injury is inflicted, the patient screams with pain, and the muscles are again on guard. Long continued malposition results in structural shortening of the tissues on the side of the flexion and finally immobilization of the joint is maintained with but little muscular effort. When the joint has been freed from motion and weight bearing for a certain time the tenderness passes off, and the patient is able to move about his bed without suffering and ultimately arises and walks, often bearing his whole weight upon the affected member without pain. Nevertheless muscular spasm and

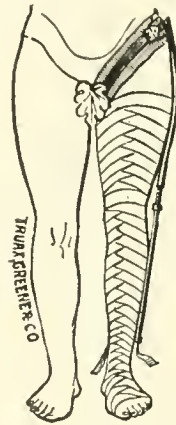


Fig. 19.—The Davis hip splint.

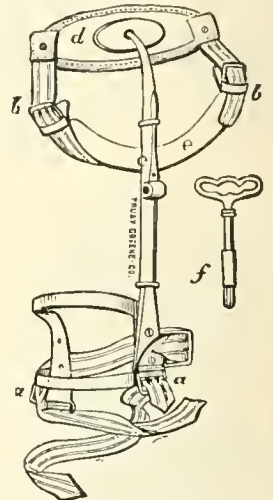


Fig. 20.—The Sayre short hip splint.

rigidity are maintained for a very considerable time. When the disease has terminated the spasm disappears, but the structural shortening of the soft parts remains, and yields gradually to use during the subsequent months and years; but if the disease has been of a severe type, it always remains to some extent.

The result of this cure by the natural process is usually a limb flexed and adducted, with true or false shortening, and a joint which lacks the normal range of motion. These defects appear to be due to the prolonged course of the disease, which hinders the growth of the limb and renders more rigid the shortened muscles; to the position of deformity in which the leg rests while structural shortening takes place, giving rise to permanent flexion and adduction and to their result, false shortening; and finally to the exaggerated bone erosion and consequent true shortening brought about by nature's unaided imperfect immobilization and protection.

The efforts of nature to effect a cure may be supplemented by art. The means which art adopts are: to protect from deformity, or, if it has already appeared, to correct it, and thus it robs the muscular contracture of its deforming power; to immobilize the joint, and thus relieve the muscles from a state of spasm and subsequent contracture; to relieve pain and prevent the bone destruction due to both

attrition and pressure; to relieve the joint from weight-bearing, and the pressure arising therefrom; and finally, to diminish all these by shortening the course of the disease. The all essential element of treatment, beyond the correction of any existing deformity, may be summed up in one word—rest. The ideal treatment would be *perfect* rest of the joint from active and passive motion, from the jarring incident to all locomotion, and from intra-articular pressure due either to muscular spasm or to weight-bearing. Such an ideal treatment we do not think has ever been attained.

The fathers in surgery treated hip disease by rest in bed and by more or less successful attempts at immobilization. Deeros, in the *Gazette des Hospitaux* of June 30, 1835, published a case of hip disease in which traction was employed. In 1839, J. H. James, of Exeter, England, presented at the Provin-

intended to give elastic traction and counter-traction at the hip joint, without restriction of the normal motions of that articulation, the attempt being to separate the articular surfaces and to thus obtain "motion without friction" at the joint (Fig. 19). Another radical change in principle was that the apparatus was to be employed while the patient walked, it being expected to furnish ample protection to the joint from the traumatism of locomotion. These principles of an ambulatory apparatus, which permitted motion at the joint and protected it by elastic traction and counter-traction, were at once adopted by Dr. Lewis A. Sayre, Dr. Charles Fayette Taylor, and others, and the treatment, which was believed to allow "motion without friction," became known as the American plan of treatment (Fig. 20).

It is perhaps, unnecessary to say that the principles upon which this treatment was based have been

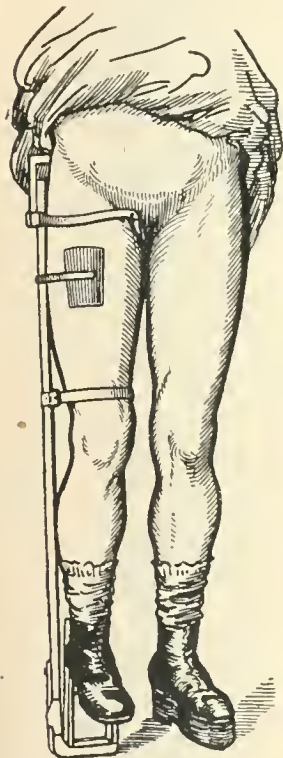


Fig. 21.—The Taylor hip splint.

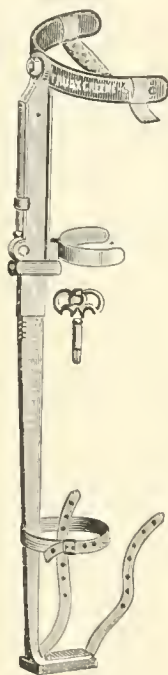


Fig. 22.—Judson's hip splint.

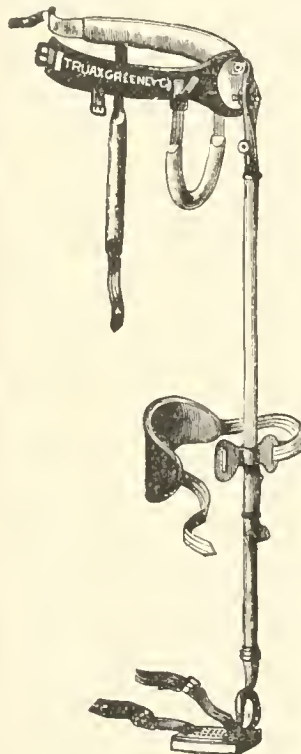


Fig. 23.—The Sayre long hip splint.

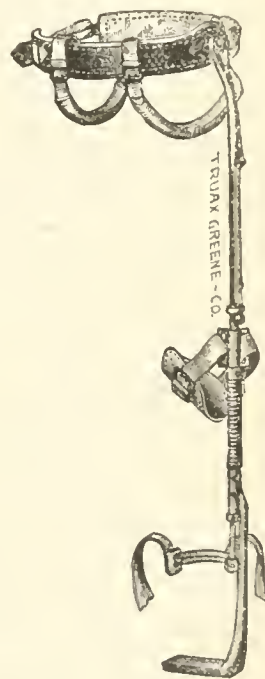


Fig. 24.—Shaffer's hip splint.

cial Medical and Surgical Association, at Liverpool, a plan of immobilization for the treatment of fractures of the thigh, by the use of traction in the axis of the shaft of the femur. In the same year William Harris, of Philadelphia, published a series of four cases of hip disease in the *Medical Examiner*, January 19, treated by traction and counter-traction combined with Hagedorn's apparatus for fractured thigh. The first of these cases was four months after Deeros' paper.

The first portable traction hip splint was devised by Ferdinand Martin and is illustrated in Bonnet's "Thérapeutiques of Articular Disease," Paris, 1853.

Following these, traction was used by various surgeons with weight and pulley and other devices, as a means of immobilization in the treatment of hip disease. In 1859, Henry G. Davis, then a resident of New York City, presented a plan of treatment essentially different in principle from any that had been previously employed. It consisted of a mechanical device,

entirely abandoned by the profession. Traction obtained by a mechanical device, known as the long traction hip splint, is still used both during recumbency and during locomotion, but it is no longer used with the idea that "motion without friction" is a mechanical possibility. Perhaps the best commentary upon the use of the long traction hip (Fig. 21) splint is found in the fact that in the city of New York three of the veterans in the profession use practically the same splint in the same way for the accomplishment of three different ends—namely, Dr. Judson (Fig. 22) uses the splint for the fixation it gives, Dr. Sayre (Fig. 23) uses it for the motion which it permits, while Dr. Shaffer believes the beneficial effect chiefly rests in the traction which it exercises (Fig. 24).

We would not be understood as denying that inelastic uninterrupted traction is an effective, though by no means the most effective, means of obtaining fixation during recumbency; but traction applied by means of any apparatus upon which the patient

walks, not only fails in immobilizing, or in being a useful immobilizing adjunct to any other apparatus, but it actually increases motion, tremor, and irritation at the articulation. This was pointed out so long ago as 1879, by the late Joseph C. Hutchinson, of Brooklyn. It is only necessary to observe a child walking upon a long traction hip splint to recognize this fact. The hip splint is applied whilst the patient is recumbent, with a traction of eight or ten pounds. The weight of the splint is from four to six pounds. When the patient stands upon the healthy extremity

action at the joint goes on with each step at the rate of at least three thousand strokes an hour as the child runs about in his ordinary play. It would appear then, that the traction splint used during locomotion is an excellent means for increasing motion at the joint, and that there is no excuse for those surgeons who use this device as a means of immobilization, or with the idea that it gives continuous traction. Traction may add to effective immobilization, and in convalescent cases may be used without serious harm, provided the patient uses crutches and has a patten on the foot of the sound side sufficiently high to effectually prevent during locomotion the apparatus

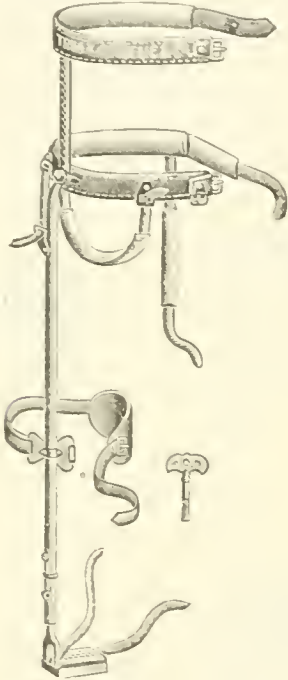


Fig. 26.—Ridlon's long traction hip splint, with friction body piece. This splint is no longer made use of by the authors.

and lifts the affected member and splint the traction upon the joint is from twelve to sixteen pounds. □

In taking the first step the splint is placed upon the ground and the sound limb lifted, when the whole weight of the patient, from fifty to one hundred and fifty pounds, is thrown upon the perineal supports. They yield somewhat, the splint

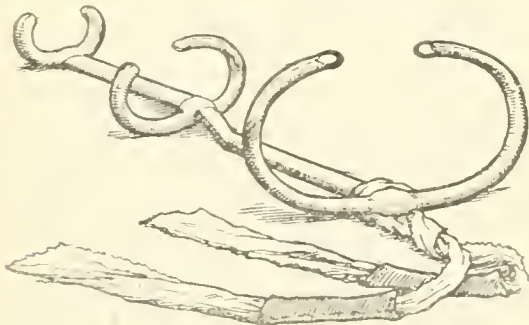


Fig. 27.—The Thomas hip splint.

bends a little and the traction force is entirely relaxed, as shown by the straps bagging at the ankle; with the next step, when the splint is raised from the ground, fifteen pounds of traction is again in force. We have thus an alternate traction of fifteen pounds and a relaxation which allows almost the full force of the muscular spasm to drive the bone upward into the diseased socket. This push-and-pull or pumping

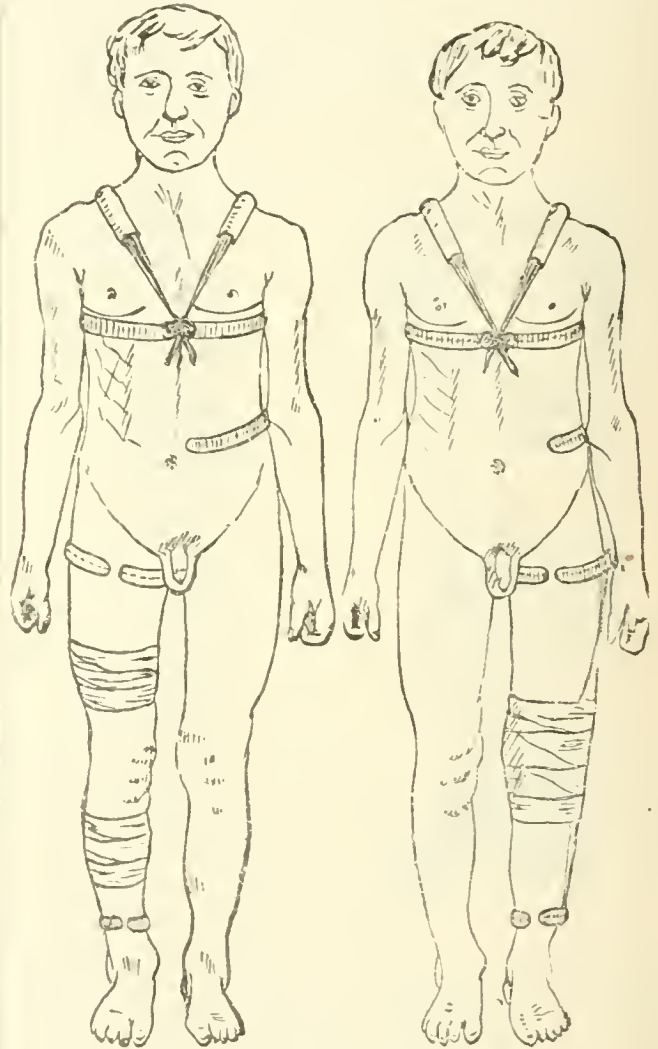


Fig. 27.

Fig. 28.

Fig. 27 showing adduction wing.
Fig. 28 showing abduction wing.

from coming in contact with the ground. We do not advocate this plan of treatment, because we think that so long as it is thought a patient can find any relief or benefit from the use of traction, he should be confined to the recumbent posture. When the joint has sufficiently recovered to warrant locomotion, traction is unnecessary. In the case of the hip it is especially so. Surgeons advocate it on the plea that it diminishes intra-articular pressure. In early coxitis it can only induce pressure upon the lower and inner aspect of acetabulum and the corresponding portion of the femur. In the late stage it can only viciously pull upon the soft structures helping

to form the joint. Apparatuses devised to give traction during locomotion are expensive, difficult of application, easily misplaced, require frequent attention, are harmful if used during the stage of pain and useless after it has passed. We have used the long traction hip splint (Fig. 25) in many hundred cases of hip disease, and we have abandoned its use because it does not, at best, readily overcome deformity; it permits the development of a marked degree of flexion with abduction or adduction, in cases where no deformity at first existed; because under its use patients suffer again and again from exacerbations

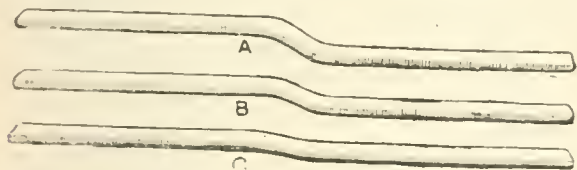


Fig. 29.—Outlines of the main stem of the Thomas hip splint. A, For stout patient. B, For medium patient. C, For thin patient.

of pain and increase of deformity which always force them to bed for a longer or shorter period; and because under its use the period of treatment is exceedingly long and the results far from perfect. Nearly all cases, when cured, present the deformity of flexion and adduction and the false shortening arising therefrom; they present a great rigidity and considerable real shortening, and not a few of them a functionless flail joint at the knee from the indefinitely prolonged pull. All that is necessary for the safe conduct of the joint may be obtained by the use of an apparatus simple of construction, slight of cost, easy of appli-

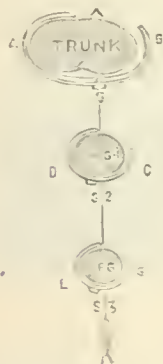


Fig. 30.—Schematic showing of the relation of the main stem to chest, thigh and leg.



Fig. 31.—Twisting the stem.

cation, not readily misplaced, rarely requiring attention, more effective to overcome deformity, to prevent the development of deformity, and to allay muscular spasm and pain, than any traction apparatus with which we are familiar.

We do not describe any apparatus of the many in general demand, except that which we ourselves have in constant use in all our cases. This apparatus is known to the profession as the Thomas hip splint (Fig. 26), known so deservedly, because it was first used by the late Hugh Owen Thomas, of Liverpool, as a means of immobilization by antero-posterior leverage in the treatment of hip disease: but it is to the principles upon which this splint is used, rather than to its general form, that the name of

Thomas should be applied, for unless the splint be used upon these principles, it may be a wholly worthless incumbrance.

Before the time of Mr. Thomas a somewhat similar device was used by Mr. Hilton to overcome deformity, and since the time Mr. Thomas first gave the splint to the profession others have used apparatuses looking somewhat like his splint, but wholly ineffective, either because of their shape or flexibility, or rendered useless by the addition of traction forces applied either in a lateral or longitudinal direction. *The Thomas splint is intended to immobilize the hip*

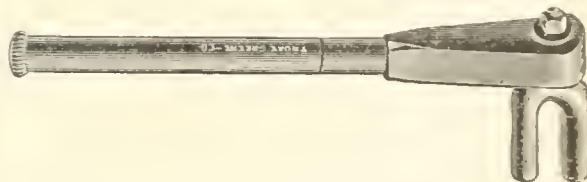


Fig. 32.—Wrench for bending and fitting the Thomas hip splint.

joint by a direct antero-posterior leverage action. By this action it reduces the deformity, or opposes a tendency to deformity. By its weight and rigidity it steadies the inflamed articulation and quickly relieves muscular tremor.

The Thomas Hip Splint.—The Thomas hip splint consists of a main stem, a chest band, a thigh band, and a calf band, and occasionally of an abduction or adduction wing passing round the flank (Figs. 27 and 28). The splint is constructed of the softest and

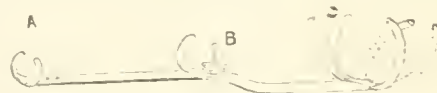


Fig. 33.—Bandage over outer wing of thigh band, and wings of chest band drawn up or down.

toughest iron. Annealed steel is not the material to be used, inasmuch as sufficient rigidity cannot be obtained without rendering the parts too difficult to easily mould to the contour of the patient.

Most serious results accrue from making splints too light, and the following practical instructions may be useful: For an adult of about six feet the upright should measure $1\frac{1}{2} \times \frac{1}{4}$ inch; for an adult of about five feet six inches the upright should measure $1\frac{1}{2} \times \frac{3}{16}$ inch; in a boy of ten the upright should measure $\frac{3}{4} \times \frac{3}{16}$ inch; for a child of five the upright should measure $\frac{1}{2} \times \frac{3}{32}$ inch; for an infant of two the upright should measure $\frac{1}{4} \times \frac{1}{4}$ inch.

In length it reaches from the lower angle of the scapula to the junction of the middle and lower third of the leg, passing down posteriorly to the hip joint. In growing children it is customary to make that portion below the joint somewhat longer than that above, but nothing is gained in immobilization by making one part longer than the other, taking the hip joint as the middle point. The upright stem is bent in two places, one opposite the fold of the buttock, the other just above the joint, so that the leg portion and body portion follow parallel lines distant from each other from one-half to two inches, this distance depending upon the size and stoutness of the patient (Fig. 29).

As a rule, the stouter the patient the nearer do these parallel lines approach each other. In a case where the trochanter is enormously hypertrophied the buttock bend may be entirely dispensed with, and

in that case the body and thigh portions of the upright form a straight line. The bends referred to should be rather rounded than angular, as may be seen in the illustration. The leg portion from the fold of the buttock to the lower end is perfectly straight, as is the portion from the bend opposite the joint to the upper end. The stem is usually twisted somewhat in its longitudinal axis, so that the body portion lies slightly to the side and flat against the curved outline of the chest, while the leg portion lies directly posterior to the middle line of the leg (Fig. 30). The buttock portion lies between the great trochanter and the ischial tuberosity. The twist varies according to certain conditions, which will be hereafter referred to in describing the adjustment of

length being due to the greater distance it has to travel. The relative length of these wings may be determined by measuring from the lower angle of the scapula around each side to the front, where it is intended that they should terminate. There is no special advantage in having these wings to end opposite each other, although it may perhaps make a somewhat neater looking apparatus. The upper end of the main stem is forged flat and bent over the chest band, and the two are made fast by a single rivet. In each end of the chest band a hole, three-quarters of an inch in diameter, is forged for the fastening of the shoulder straps; or, what is less convenient, holes are drilled for the attachment of buckles, or bandage. The thigh band is made of flat bar iron, $\frac{1}{16} \times \frac{3}{4}$ inch, and, being placed on the surface of the main stem next to the patient, is joined to it by one rivet at a point about an inch below the lower bend. If the splint is to be made reversible the wings of this band should be made of equal length: if it is intended for one side only the inner wing is made an inch or two longer than the outer. The calf-band is also made of flat bar-iron, $\frac{1}{16} \times \frac{3}{4}$ inch, and is joined to the lower end of the stem by a single rivet in the same manner and with the same rel-



Fig. 24.—Left wing of chest band drawn down to adduct the right limb.

the splint. The chest band is also made of flat bar iron, which varies in width and thickness in proportion to the size of the patient—usually from $\frac{1}{2}$ to $1\frac{1}{4}$ inch wide by $\frac{3}{8}$ inch thick. It should be long enough to encircle the chest to within an inch or two. If the splint be made reversible, so that it may be applied to either leg, as is customary in hospital work, it is joined at its middle to the upper end of the stem, whereas if it is to be used only in a certain individual case, it is joined from one or two inches to one side of its middle, so that one wing will be longer than the other. The longer wing encircles the chest opposite to the diseased side, its greater

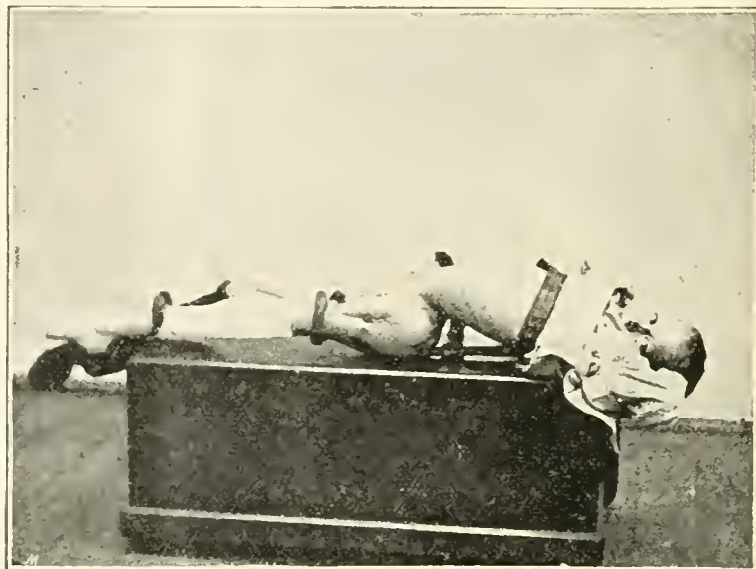


Fig. 35.—Showing possible lordosis in correcting a case of marked flexion.

ative lengths of wings as the thigh-band. When an abduction or adduction wing is required it is made from the same sized iron as the thigh-band. This should be placed at such a point that it will pass around the flank midway between the crest of the ilium and the ribs. This point is usually about midway between the buttock bend and the chest-band. The wings or bands are bent approximately to fit the imaginary patient, and the surface of the entire splint next the patient is covered with felt, either harness-makers felt, or what is better, ordinary boiler felting of one-fourth inch thickness. The whole is then covered with that kind of sheep-skin known to the trade as bazil leather, or "tan sheep." This should be put on wet and snugly stitched into place, so that as it dries the shrinking will prevent any slipping upon the iron. The stitching of this leather is of course done on the surface of the splint away from the patient; it may be done with the so-called ball-stitch, or, what is more ser-

viceable but less neat, the two edges of the leather may be drawn up together and sewed through after the manner of the harness-maker with a double waxed end; the redundant portion of the leather is then trimmed off.

The splint is then applied while the patient rests upon his back, the wings upon the side away from the deformity being opened out sufficiently to slide the splint under the patient from the affected side without unnecessary jar or movement. When the main stem rests in place, the leg portion will be directly behind the middle line of the thigh and leg, the part between the bends directly at the back of hip joint, and the body portion somewhat to the outer side of this line, the whole lying flat against the chest,

circular, else intolerable soreness will result. By closely examining Fig. 30 this will be seen. The part between A and B upon which the patient lies is but very slightly curved and this allows the body to rest comfortably and travel easily towards the diseased side B, which is of great advantage.

Another very simple expedient consists in making a small hole in the bandage and passing it over the outer of the thigh wings and rolling it under splint and thigh and round the limb, so that the appliance is pulled in the opposite direction to that which it tends to travel. When satisfactorily fitted a short piece of bandage is wrapped around the splint and leg at the lower extremity and pinned securely, and another wrapped around the thigh above the knee, or, what serves in some cases more satisfactorily, a single piece is wrapped around the knee in the figure-of-eight fashion and pinned with a large pin directly through the covering at the back of the splint, so that the bandage cannot slip upon the splint, and any tendency of the splint to slip downward is avoided.

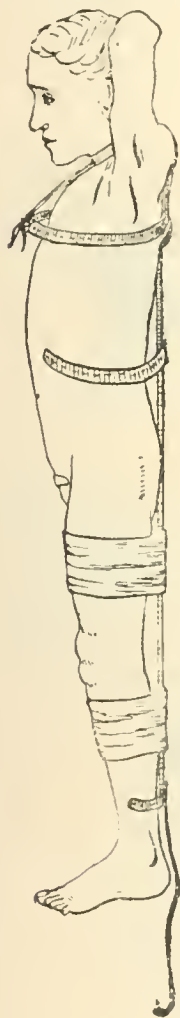


Fig. 36.

Fig. 37.

Fig. 36.—Nurse. Fig. 37.—Nurse attached having an abduction wing.

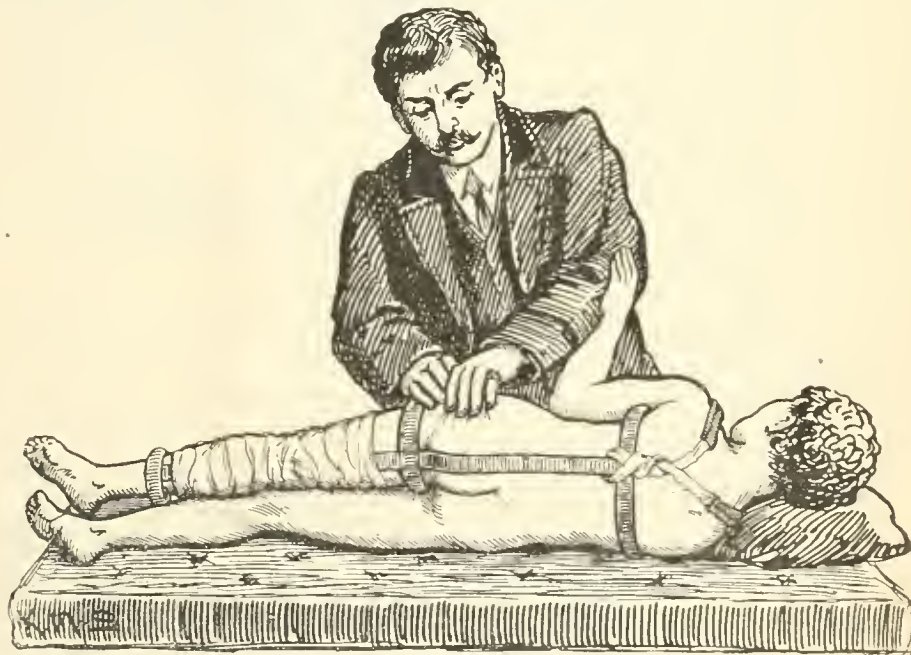


Fig. 38.—Changing the skin under the splint.

thigh and leg. This fitting may be done approximately by the hands, but better by wrenches (Fig. 31) hereafter to be described. The wings to the inner side of leg and thigh and the wing of the chest-band on the same side, namely those on the side away from the diseased articulation, are drawn more closely than those on the affected side (Fig. 30). The reason for this is that the splint tends somewhat to the affected side of the patient and to draw the leg into abduction.

Particular attention must be paid to the bending of the body wings. As the chest is not circular it is necessary that the body wings should not be made

If the splint be found too large, or when the patient grows, too small, it may be necessary to modify or increase its length. This is quite simply done. If it be too large draw both body wings towards the abdomen; if too short draw them towards the neck. The dotted lines (Fig. 33) will explain this. A strip of broad bandage is then looped around the upper end of the stem below the chest-band, and having been twisted two or three times so that the ends will separate high upon the back (Fig. 38), each end is carried over a shoulder and brought down to the hole in the end of the chest-band like a pair of braces (Fig. 27); here each is tied securely, crossed to the hole at the opposite side and again tied, when the ends are tied together. The final knot should be secured either with a long pin driven through it and twisted at its end, or with a bit of adhesive plaster. The splint should be applied without bending it from the shape already described if it is possible to force the leg at the knee reasonably near the splint. The lumbar spine readily curves when there is flexion at the hip suffi-

ciently to allow the limb to be brought down to the splint when there is as much deformity as fifty degrees; but if the deformity be very great, as much, perhaps, as nineteen degrees, it may be necessary to bend the splint just enough to get the limb in contact with it when the fullest possible lordosis has been obtained (Fig. 35). In these cases the bending is done at the upper bend of the main stem, directly at the back of the hip joint. In practice, however, this will rarely be found necessary, and has its disadvantages.

leather. Lead foil plaster is alone placed around the body wings and stem. If the splint has been accurately fitted no sore or excoriation results.

If it is desired to prevent a patient from walking, a strip of iron is screwed to the lower end of the splint, and may be bent to pass free of the heel, and carried ten or twelve inches below the foot, so that standing or walking is quite impossible. This piece is called a "nurse," and will be found, when children are restless, a safe precaution during the period of recumbency (Figs. 36 and 37). If severe leverage be

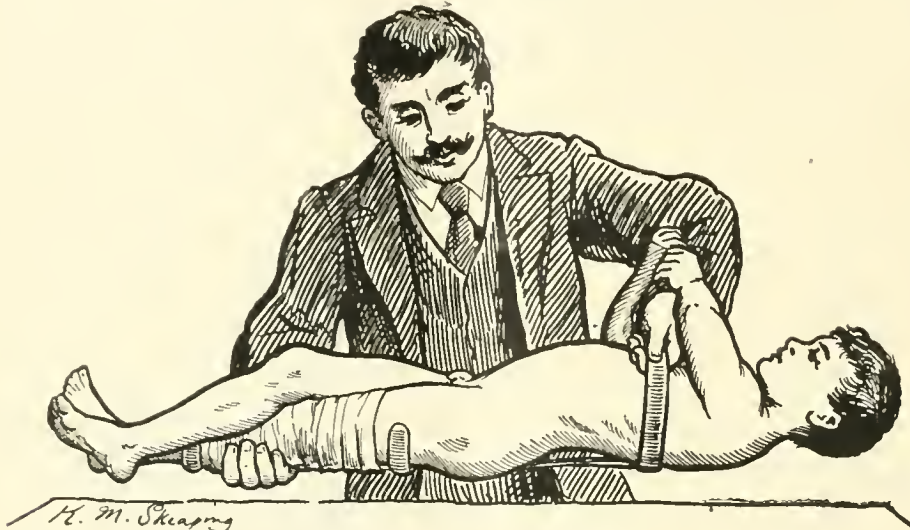


Fig. 39.—Lifting a patient in the splint.

If there exists any considerable degree of abduction a wing should be attached as already directed, passing around the flank on the side opposite to the disease. If there be any considerable adduction the wing is attached to the same point, but passed around the flank on the side where the disease is located. Care should be taken to draw these wings well in between the ilium and ribs, since pressure is

brought to bear over the buttock in order to reduce a marked and rigid deformity, care should be taken to shift the skin about twice a day where it presses with most force on the stem (Fig. 38), and to see that all parts about the hips are kept clean, dry, and well-powdered, otherwise pressure sores may result.

If the splint has been bent to fit the deformity, it must be straightened as soon as possible, sufficient

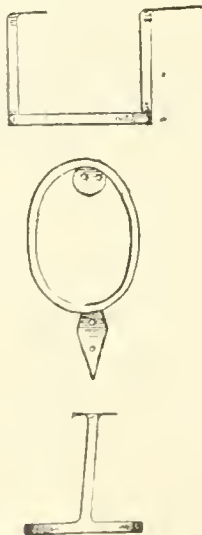


Fig. 40.—The patten.

not tolerated over these bony points. At other times these body wings are drawn down into the position taken by abduction or adduction wings when one cannot conveniently procure the additional wings. In case of the very poor the hip splint is often applied by one of the authors without padding or

opiate being given to quiet the pain during the few hours or days of the reduction of the deformity. During this time, of course, the patient must remain in bed, and recumbency should be maintained until all pain and intense muscular spasm has subsided. When the deformity has been reduced the leg should scarcely at all interfered with, the splint should



Fig. 41.

not be removed, motion should not be tested, even the bandage at the knee should not be changed except they become slack or soiled. The most abso-

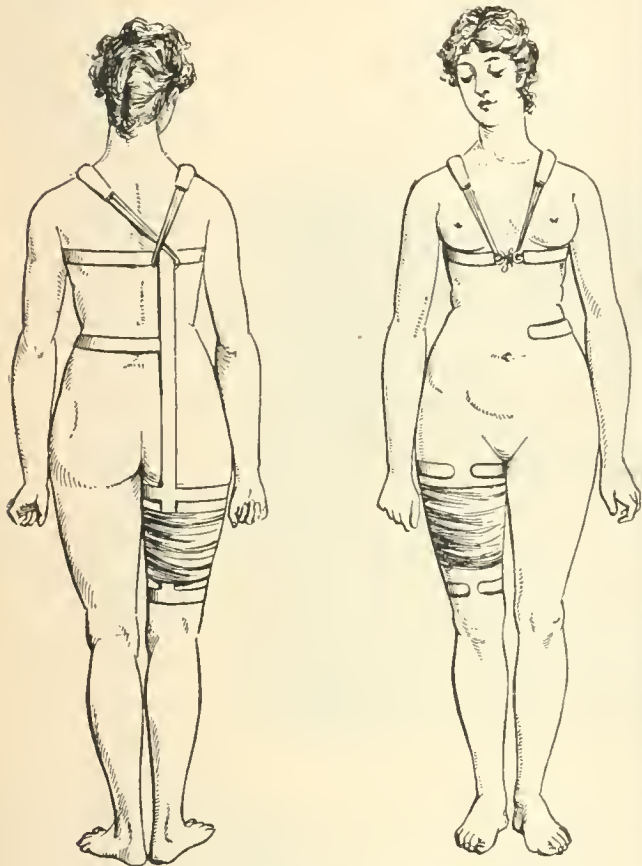


Fig. 42.—The short, or walking brace used during convalescence.

lute quiet to the joint and to the patient must be enjoined, and the necessities of nature should be

hand under the splint just below the knee, while with the other she lifts the chest band (Fig. 39). When all pain, tenderness, and muscular spasm have been quiescent for some weeks, and when no sign of fluctuation can be made out about the joint, the patient may be allowed to arise and get about on crutches, aided by a patten on the sound limb.

The patten consists of an iron ring with two uprights, the ring resting on the ground and the uprights rising from the front and back, reaching to the shoe and fastening to the heel and sole (Fig. 40). The ring is oval shaped and is made of square bar-iron not less than three-eighths of an inch thick. It reaches from the ball of the foot to the middle of the heel and its width is slightly more than that of the sole of the shoe. The uprights are of round bar-iron

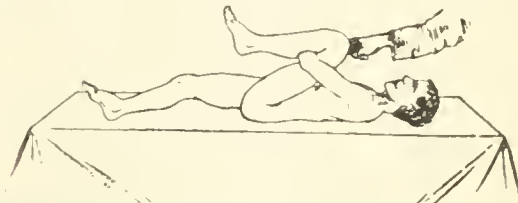


Fig. 43.—The Thomas flexion test position.

set at right angles to the plane of the oval ring, and should at their lower ends be welded to it, their upper ends are forged flat, pierced with three holes and bent forward. If the patten is to be attached to a thin-soled shoe it will be better to rivet these flattened ends to a metal plate shaped to fit the sole of the shoe and screwed to it. The height of the patten depends upon the size of the patient and should be from four to six inches, high enough to prevent the patient from reaching the ground with the toe of the affected side. This with the ordinary axillary crutches completes the walking outfit (Fig. 41).

For the most perfect result the patient should be kept recumbent until all pain, tenderness and mus-

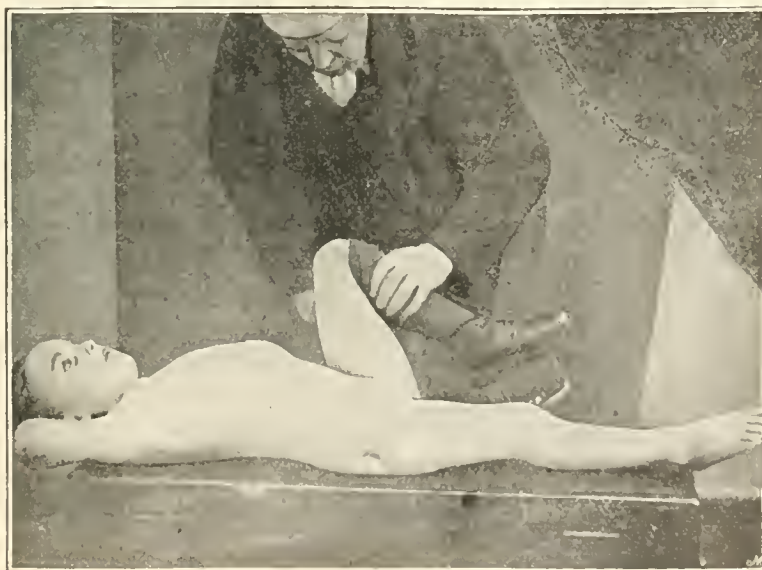


Fig. 44.—Sinus healed. Good position.

attended to by gently lifting both lower extremities and inserting the bed pan. This can be done without causing pain in even the most sensitive joint. The good limb is placed gently across the diseased one, and the nurse lifts the patient by placing one

cular spasm have subsided. He may then walk about on crutches and patten until all the soft tissues about the joint are well atrophied and all trace of the disease has disappeared.

The patten may be then dispensed with and the

crutches shortened, and in this manner he may go about for two or three months. If there be no evident return of the disease the crutches may now be thrown aside and the joint further tested by two or three months' use. All still going well, the splint is now cut off at the knee so as to permit of flexion there, a band being attached at the lower end after the same manner as the calf band (Fig. 42).

experienced by a patient recovering from articular disease cannot be very reliable under the masking influence of a splint. The test comes on removal of restraint, and a very critical time it is unless the surgeon has grasped the knowledge whereby such a test becomes reliable. No surgical text-books give any allusion beyond vague generalities to the means of knowing the right moment to discard treatment.

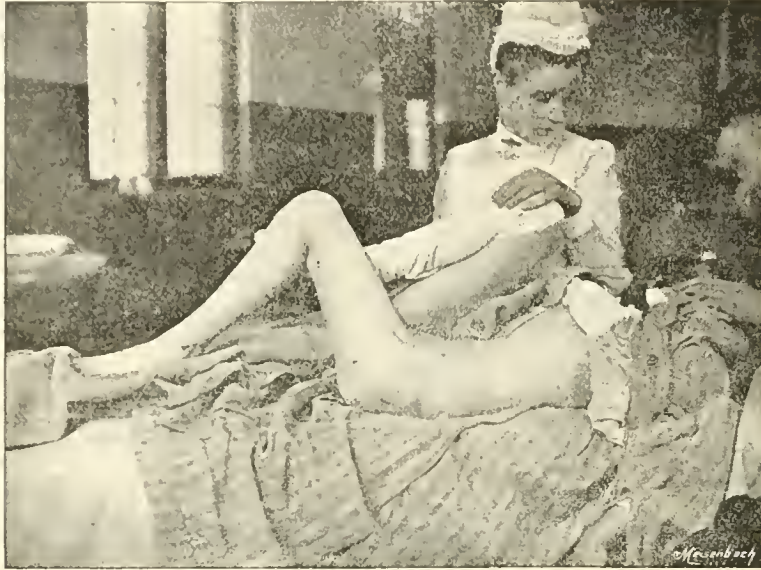


Fig. 45.—Flexion of thigh. Sinuses open.

This short walking splint having been worn for two or three months, and there being no return of the symptoms of the disease the splint is removed at night for a month or two. If the joint remains well

There is no more danger of relapse in cured joint disease, than there is of disease in a healthy articulation. But if a joint be pronounced fit for use when the remnants of inflammation have not gone, it is



Fig. 46.—Same case as fig. 45; flexion reduced and sinuses closed.

the splint is removed for certain hours during the day and then altogether, and the joint finally tested for perfect cure.

The joint should be imprisoned long after the appearance of disease has gone and after all subjective symptoms have disappeared, for the sensations

easy to understand the very frequent references to relapse which meets us everywhere. The law may be again laid down. *A joint is cured of disease where the range of movement does not diminish by use, or in those cases resulting in ankylosis a cure may be pronounced where the angle does not change after use.*

All patients should be examined at the commencement of treatment for the purpose of diagnosis and record, and again at the close of treatment for a comparative record and for the diagnosis of a cure. In each instance the patient should if it is practicable, be entirely stripped of all clothing the attitude should be noted in standing, walking, and lying, the amount of motion at the articulation compared with that of the sound side, the member measured for both real and false shortening, for abduction, adduction, flexion and atrophy.

It is our effort to encourage rather than otherwise the production of abduction in the cure of hip disease. It diminishes the amount of practical shortening caused by displacement, erosion or arrest of growth. By recognizing this we are sometimes able, where there is perhaps two inches actual shortening, to slant the pelvis sufficiently to render the apparent or practical measurement equal on either side.

To render the pelvis flat in a definite position it is customary for us to put the patient in what is known as Thomas's "flexion test" position (Fig. 43). This consists in flexion of the thigh of the sound side upon the trunk, so far that the elbow of that side can be hooked into the flexure at the knee and the forearm carried across the body. This gives a sufficiently definite position to render meas-

from side to side as the patient lies upon the table, or the patient may sit with his legs dangling over the side of the table and the foot may be swung from side to side. The patient then is placed prone, and, if the degree of deformity will admit it, the leg is flexed on the thigh at a right angle, the ankle is grasped by one hand, the pelvis steadied by the other hand resting on the sacrum, rotation is tested by moving the foot from side to side, and also by lifting the whole limb from the table. The parts about the joint should be palpated for tenderness, induration and fluctuation. The presence and size of abscesses should be noted, the location of sinuses and their character, and the nature of the discharge. The advent of an abscess is usually first made by increased pain, muscular spasm and tendency to deformity. Tenderness may often be made out on palpation, and sooner or later, induration or a boggy feeling is manifest. This usually is first felt directly in front of the joint, although it may appear posterior to the greater trochanter, or in fact at any point in the neighbourhood. As the abscess increases in size it usually extends downward and may come to spontaneous opening within a few weeks, or not until after many months.

It does not appear to us that anything is to be gained, and often much may be lost, by early opera-

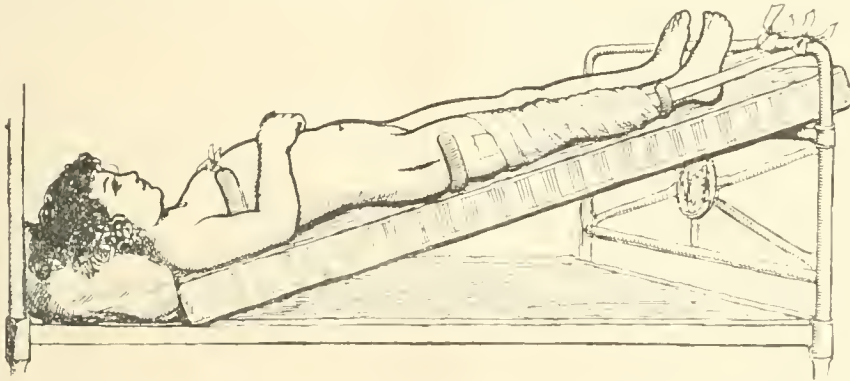


Fig. 17.—Fixation traction after excision of the hip joint.

urement, made at different times by the same or different surgeons, comparatively accurate, although unless the surgeon be careful, flexion to the Thomas position in some cases tilts the pelvis upwards and renders the record of deformity not only that of the existing flexion but also that of the amount of normal extension.

These deformities may, perhaps, be more accurately measured with the goniometer, but the measurement with the tape is generally more convenient, and is sufficiently accurate. The amount of muscular atrophy of both thigh and calf should also be recorded. The degree to which motion is possible in the antero-posterior direction may be ascertained in the same way as deformities are measured. The deformity having been measured and recorded, the presence or absence of involuntary muscular spasms, limiting the motion of the joint, should be tested. To make this test it is convenient to first test the leg of the sound side. The pelvis is steadied by one hand, placed over the spines of the ilium, while the other grasps the leg just below the flexed knee; flexion, abduction, adduction, and rotation are then tested. The affected limb is then tested in the same manner. In timid patients or very sensitive joints it may be as well to test rotation by rolling the leg

tive measures upon the abscess of hip disease, provided there are no constitutional symptoms of septic infection. An abscess opened early invariably conducts to carious bone, and generally to a joint extensively diseased. Rarely can all the tubercular material be removed without a complete excision of the upper portion of the femur and of the acetabulum. Unless all diseased tissues be removed, a sinus is likely to remain which may subject the patient to septic infection. An abscess left unopened for some months often descends a considerable distance and becomes cut off from the site of the original focus. In such a case careful operative measures without drainage should result in immediate closure and primary union, but it is not easy to tell when the abscess is no longer connected with diseased bone or joint, and the surgeon who interferes takes a very serious responsibility. He should not, in our opinion, open such an abscess unless he can be reasonably sure of removing all tubercular material, and of closing the wound without drainage. The use of a draining tube leads to the formation of a tuberculous sinus, which is exceedingly difficult to heal, far more difficult than a sinus resulting from spontaneous opening. When operative measures are undertaken we believe that the tubercular tissues, whether sac of

abscess, wall of sinus, synovial membrane, cartilage, or bone, should be removed by cutting with a knife or chisel, instead of the scratching and scraping to which such tissues are usually subjected by the so-called sharp spoon. There can be no question

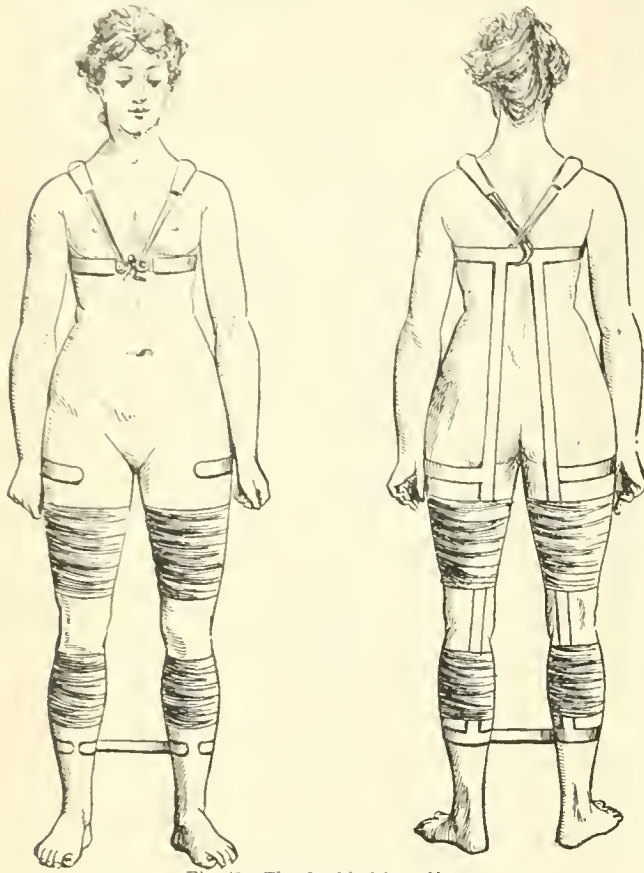


Fig. 48.—The double hip splint.

that the risk of general infection is greater from a cutting operation than where none is done, but the risk is much increased by the scraping process. In considering the treatment of these abscesses it should be remembered that a very considerable number of

ing from its presence. We would make the same rule regarding other operative procedures, such as the removal of the focus of disease within the bone, excision of the joint, and amputation. If any case in the recumbent posture should grow progressively worse under efficient immobilization of the joint and the best obtainable hygienic surroundings, operation for the removal of the disease would be indicated; but we have not seen such a case unless it had been allowed to go on to an exceedingly advanced stage without any treatment whatever. The preservation of the patient's life, then, we would make the only indication for an excision of the hip joint, or for an amputation. The operations for excision, or for amputation, need not be described here, since they are found in all works on general surgery; but if excision be performed, thorough mechanical treatment following the operation is indicated and should be the same as in the treatment of an unsound articulation. This after-treatment we think is often neglected by the general surgeon, and may account for some of the relapses which have been reported. The mechanical treatment of these cases, consisting of immobilization and protection to the joint, should be continued until every evidence of unsoundness has been absent for a very considerable time. The hip-splint, used after an excision, should be supplemented by the addition of fixative traction as is done in some cases of fracture of the upper portion of the femur (Fig. 47).

A strip of adhesive plaster is applied to each side of the limb from the upper portion of the thigh to the neighbourhood of the calf-band of the splint, the lower ends of these strips are then carried around the wings of this band, so as to secure the necessary traction, and fastened securely, and the splint is adjusted without the usual shoulder straps. While the patient, without shoulder straps, is lying in bed the splint tends to work downward sufficiently to overcome the muscular contracture which would produce unnecessary shortening. At times old and neglected cases will present themselves for treatment with a serious deformity, and the question as to whether any operative measures are demanded. If

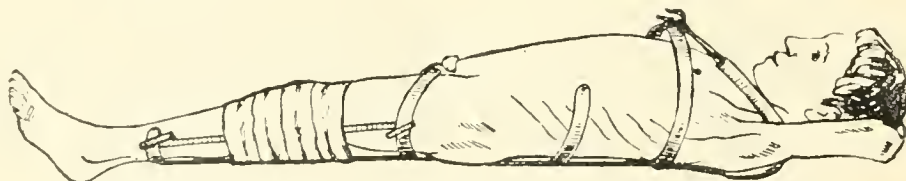


Fig. 49.—Side bar to correct or prevent knock-knee from spasm of the adductor muscles.

them, if left to themselves, the joint being put at complete rest, never go on to an opening, but gradually dry up and disappear without any apparent ill-effects to the health of the patient (Figs. 44, 45, 46).

If it were certain that every abscess would come ultimately to the surface, or if there were any reason for believing that the health of the patient suffered from allowing them to remain unopened, or from their being reabsorbed, operative measures would be justified in all cases; but as there is no way of knowing what is to be the course of any given abscess, we believe that the indications for operative interference should be made to depend upon the general health of the patient, and that no abscess should be opened unless the patient's health be unquestionably suffer-

ing from its presence. We would make the same rule regarding other operative procedures, such as the removal of the focus of disease within the bone, excision of the joint, and amputation. If any case in the recumbent posture should grow progressively worse under efficient immobilization of the joint and the best obtainable hygienic surroundings, operation for the removal of the disease would be indicated; but we have not seen such a case unless it had been allowed to go on to an exceedingly advanced stage without any treatment whatever. The preservation of the patient's life, then, we would make the only indication for an excision of the hip joint, or for an amputation. The operations for excision, or for amputation, need not be described here, since they are found in all works on general surgery; but if excision be performed, thorough mechanical treatment following the operation is indicated and should be the same as in the treatment of an unsound articulation. This after-treatment we think is often neglected by the general surgeon, and may account for some of the relapses which have been reported. The mechanical treatment of these cases, consisting of immobilization and protection to the joint, should be continued until every evidence of unsoundness has been absent for a very considerable time. The hip-splint, used after an excision, should be supplemented by the addition of fixative traction as is done in some cases of fracture of the upper portion of the femur (Fig. 47).

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muscular spasm be evident on attempting motion at the joint even if there be no possible motion, or if an apparently sound joint possesses a certain degree of motion, the deformity can be corrected in a comparatively short time by the leverage action of the splint; or the deformity may be corrected at once, or nearly so, by anæsthetizing the patient and placing the limb in the best possible position. In these cases we do not recommend section of the tendons, fasciæ or other contracted tissues, although there may be no very serious risk in their division. To this subject however, we will return again. We think it safer to divide the femur with the chisel either through the neck or in the neighbourhood of the lesser trochanter than to attempt a fracture by manipu-

lation. The after-treatment of either of these operations is the same as indicated after an excision of the joint. The patient should remain in bed until union is sound, when the splint may be removed and he may remain in bed, an equal time, without immobilization, or in place of recumbency, in certain cases, the splint may be cut off at the knee and the patient allowed to go about with splint and crutches, without the patten, for a period equal to that which was required for the union of the bone.

Cases occasionally appear with abscesses or sinuses so placed that the pressure cannot be born from the main stem; it is then customary to immobilize by the double hip splint with a longer or shorter section of the main stem on the affected side removed. The double hip splint, which is used in all cases of hip

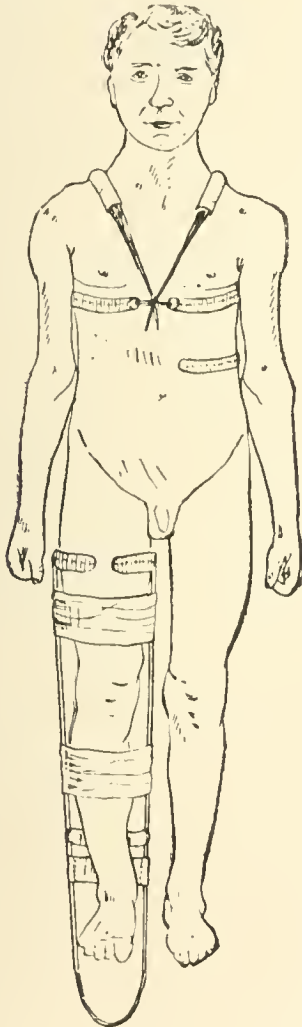


Fig. 50.—Attachment for knee joint disease in conjunction with hip disease.

(Fig. 48) disease affecting both joints at the same time, and in some cases of young children where the joint sensitiveness in single hip mischief is extreme, consists of the chest band already described, from which two main stems pass at a point opposite the lower angle of each scapula downward, posterior to each hip joint and down the back of each limb, and separate at the bottom by a distance from four to eight inches. The lower ends of the main stems are joined by a straight bar of iron, the inner wings of the thigh bands are usually omitted, and we gener-

ally add a lateral wing to each side. Upon this splint the patient can be moved from bed to a couch or to a carriage with very little inconvenience or pain. Cases of double hip disease are not so very infrequent, occurring perhaps in the ratio of one to one hundred of single hip disease. The disease rarely begins in both joints at the same time, and it occasionally develops in the second joint while the patient is lying recumbent and protected from all traumatism during treatment of the first joint. Under these circumstances it frequently occurs that the joint last attacked recovers first, though not invariably with the greatest amount of motion. Partial or complete ankylosis of both hip joints resulting from double disease is not so very serious if the lumbar spine be sound and flexible, and provided the limbs be in relatively normal position. Patients are able to walk and to climb stairs, to sit, and to perform most of the ordinary movements of life fairly well. The results of double hip disease, treated by the Thomas double hip splint, appear to be somewhat better than the results of disease in single joints. The nature of the affliction is such, that prolonged recumbency is necessitated, and walking is impossible before recovery has become practically complete.

In hospital practice and among the very poor and ignorant, it will often be found impossible to keep the patients in bed with single hip disease as long as we have indicated to be desirable, and it will also be found impossible in all young children and in many older ones to compel the use of the high patten and crutches. Parents will permit these children to walk and bear their weight upon the diseased limb. As a matter of fact these cases do better than we might expect. We have observed many such, and find that some recover without flexion, rarely with adduction, and with very little, and sometimes no, shortening. The number that have partially stiff joints is greater than among those where treatment has been carried out in accordance with correct theories.

Now and again during the development of abscess a case will present so intense a degree of spasm of the adductor muscles that, if the patient remains fixed in the ordinary splint, knock-knee will result from adduction of the thigh, the lower portion of the leg being held by the lower part of the splint. This complication is prevented or corrected by passing a light bar of iron from the thigh band to the calf band, along the outer side of the leg, and bandaging the knee to this band as well as to the main stem (Fig. 49).

In cases where disease at the knee-joint appear at the same time with disease at the hip, the knee may be immobilized by joining the knee and hip-splint together, or by adding to the hip-splint a light band of iron passing down each side of the leg and around somewhat below the foot, and rivetted to both inner and outer wings of the thigh and calf bands (Fig. 50).

In cases of spondylitis of the lumbar region, occurring at the same time as the disease at the hip, the back may be protected by a stout sling of leather, passing from one main stem to the other of the double hip-splint, or the main stem with its thigh and calf bands may be attached to a spinal support.

ADDRESS ON DIETETICS.—MEDICAL FOOD ETHICS NOW AND TO COME.

Delivered before the Section of Physiology and Dietetics of the American Medical Association, at its Forty-third Annual Meeting held at Detroit, Mich., June, 1892.

BY EPHRAIM CUTTER, M.D., LL.D.,
OF NEW YORK CITY,
SECRETARY OF THE SECTION.

There is no doubt in my mind that most of the common diseases depend upon food for cause and cure save those from wounds, injuries, contagion and infection.

Foods are substances, organic and inorganic, which, taken into the human body become normally changed into the normal tissues of that body and which sustain normal life. On this definition, air is food, water is food, common salt is food, all belonging to the mineral kingdom. It is clear that life cannot exist without air food, for example; cut off all air food from the sick and you cut off the sick from their life and disease.

To put this more clearly take the Sections of this Association, in the order given by the Secretary in THE JOURNAL:

Obstetrics and Diseases of Women.—If I can judge from experience, difficult labors and gynecic diseases are largely due to bad feeding before and after labor; I know a case where a woman had four successive very difficult labors which were deemed so perilous that her physicians advised her not to have any more children for fear of death—yet this woman after being dieted had a fifth labor that was so easy that her child was born with only one pain and a half hour before any physician could reach her. I have known puerperal convulsions which is one outcome of fatty degeneration by feeding on carbo-hydrates in excess—to be cured by medication and nitrogenous food and two successive labors to be normal.¹

Section of Surgery and Anatomy.—A great many of the physical lesions for which surgery is used come from bad feeding—among which are tumors, diseases of the eye, stricture of intestines, empyema, to name no more. If a body is otherwise healthy from good feeding such bodies respond the best to surgical means used for relief, especially in cases of wounds, contusions, fractures.²

State Medicine.—Read the discussion on Senator Paddocks' Pure Food and Drug Bill and the diplomatic reports of our ministers to France, Germany and Italy on the hog.

Ophthalmology.—Oculists have told me that a large part of the diseases of the eye came from bad feeding. Drs. B. W. Richardson and S. Weir Mitchell years ago showed the production of cataract in ten minutes time by the hypodermatic injection of one teaspoonful of a saturated watery solution of sugar under the skin of a guinea pig or a frog.

Laryngology and Otology.—One reason why I am now an advocate of food treatment of disease is that I found I could not cure throat cases satisfactorily unless I paid attention to the diet. Pharyngitis sicca

for example thus becomes very curable. The delicate structure of the ears are much affected by bad feeding, which was seen when men were fed on oatmeal alone, being troubled with noises and later deafness.³

Diseases of Children.—It is notorious that one-half of all children die before five years of age and the greatest cause of this mortality is bad feeding. Cholera infantum is par excellence a food disease and my grand-children did not have it as they were fed on wheat, milk and meat.

Oral and Dental Surgery.—A dental friend once fed three youths, from ten to fifteen years on animal food and fresh air food in the woods of Maine; in three months the texture of their teeth was changed from chalky and friable to the firm normal fibrous texture of health—all which tends to show that decayed teeth come from bad feeding. I know a man about sixty years of age who expected to lose all his teeth before the age of thirty, but by giving his teeth better soluble mineral food he retains most of them in fairly good order; this was a case of consumption of the bowels in early youth. Feed man as well as dogs are fed and you will have as good teeth, but the teeth must have hard things to chew as Prof. E. A. Wood, of Pittsburg, has shown. In the London Zoological gardens a number of years ago some lion cubs were born with cleft palate which on investigation was found to be due to the fact that their mothers had not been fed on their usual supply of animal food during gestation.

Neurology and Medical Jurisprudence.—At a late medical meeting, alienists showed casts of defective jaws and teeth of aliens. I have seen a good many such in the mouths of people. I have met them in traveling (to say nothing of those encountered and examined in practice) who were not aliens. I think the bony defects came from bad feeding. Stunted trees are found to be due to sterile soils and high altitudes, i.e. from a limited supply of air and earth food. Unless the nervous system is well fed insanity and nervousness cannot be kept out. I think that divorce comes somewhat from bad feeding producing dyspepsia and nervousness which make constant quarrelling, conflicts and clashing more easy.

Of the urine of one hundred male aliens (asylum) I found catarrh (protoplasmic) of the genital organs in 80 per cent.; this catarrh is a fruitful cause of neurasthenia amounting some times to insanity and it is produced by bad feeding and also cured by good feeding mainly. (This statement is based on more than ten years of recognition of this catarrh as a cause of neurasthenia in private practice). I know that doctors would have clearer heads if they fed their brains rightly, and their patients would have leveler heads if fed rightly and perhaps there would be fewer suits for mal-praxis.⁴

Dermatology and Syphilography.—I have seen diseases of the skin held in abeyance by good feeding and return with bad feeding. As to syphilis I believe it is a germ disease communicated by contact and is not wholly in this category—but good feeding goes a long way towards relieving and curing the terrible devastations of syphilis which occur in those who are poorly fed and weakened by drink. A case

¹ Food in Agalaxia, Amer. Jour. Obs., April 1878.—Feeding nursing children, Va. Med. Mo., Aug. 1880.—Diet list for lactation, Mich. Med. News, Aug. 1880.—Milk and Motherhood, Annals of Hyg. Phil'a., March, 1880.—Puerperal convulsions, relations to feeding, N. E. Med. Mo., Feb. 1887.—Reversed peristalsis, Va. Med. Mo., April, 1888.—Food in motherhood, Book. David Stott, Pub., 370 Oxford street, W. London, Eng.

² Food as a medicine in uterine fibroids, Amer. Jour. of Obs., Oct. 1877.—Diet in cancer, Alb. Med. Annals, July-Aug. 1887.—Stricture of the colon, Alb. Med. and Surg. Age, March, 1889.—Food and uterine fibroids, Tenth Int. Med. Congress, 1890.—Fatty and fibroid degenerations, Jour. Amer. Med. Assoc., Feb. 1890.—London Lancet, vol. I, 1890.—Diet in tumor and cancer, Med. Bulletin, Aug. and Sept. 1891.

³ Food and Throat affections, Jour. of Laryngology, London, Eng., May, 1890.

⁴ Food, Nervousness and Divorce, Therapeutic Gazette, Aug. 1880. Male Neurasthenia, Va. Med. Mo., Feb. 1890.

of syphilis of ten years' duration, remarked that the periodic skin troubles he had could be kept down only by following the course of diet laid down for him and using his ointments; if the diet was not maintained as ordered, local applications were worthless.⁵

Materia Medica and Pharmacy.—As things now go the efforts of this Section in the food line are largely on manufactured dietetic preparations. One preparation of invalids' food has gone so far as to define a mechanical separation to be an extract. Indeed the medical profession has been and is now in the receipt of more instruction on food from this Section than any other.

Physiology and Dietetics.—This is a food division without any doubt.

Practice of Medicine.—Here is an abundant field for food in the handling of acute and chronic diseases—of the latter note consumption of the lungs and bowels, bronchitis, hay-fever, asthma, rheumatism and all affections of the alimentary tract, to name no more.

This brief statement shows how close the subject of food comes to our Association and leads us to discuss

MEDICAL FOOD ETHICS AT PRESENT.

Judging from the reluctance of physicians here and abroad to furnish papers for this Section it would seem as if the profession was in an apparently helpless condition as to food with the exception of pharmacists who so freely publish instructions as to foods and the treatment of disease by foods. Often it is the food they prepare that they recommend and offer as a clear guide to the perplexed physician out of his dilemma. The most positive directions for surest relief come from those who are not even pharmacists nor apothecaries and then if the words of these food vendors are to be relied on there is no need of any physician studying up the subject of alimentation nor hence any necessity for the Section of Physiology and Dietetics.

We should always be grateful for any useful information as to foods no matter whence it comes, but it does seem that the absence of any chairs in our medical colleges especially on the subject of foods is one cause of the present failure of food ethics.

Another trouble is the difficulty in carrying out any regime of food. Patients, cooks and almost all the laity are not willing to deny their appetites and had rather eat and die than eat to live. They will not give up what they like to eat on the principle that the French now lay down and Count Rumford laid down, that any agreeable food was nutritious. This difficulty in the army and navy is overcome by the discipline, and we have the privilege of hearing from these arms of our service where the men must eat what the surgeons direct, according to law.

Among the curiosities of medical food ethics are: 1. the fact that physicians have stood up for their rights to study foods, but a cold shoulder has been turned to them as a rule, their dicta disobeyed, while the dicta of unprofessional people, non-medical experts and pharmacists are received as law and gospel no matter if these dicta proved clinically to be

untrue and fallacious, while curiously, some physicians recommend a food which chemically and morphologically has been shown to be common flour worth perhaps five cents per pound but which advertised as a food sells for one dollar a pound and set forth with steel engravings. Surely this attitude of medical men against their fellows and in favor of out-siders is very queer ethics.

COOKS USURP THE PLACE OF DOCTORS.

Menus are made by cooks who are nameless and know little of food save as to their preparation. Generally cooks are uneducated with some noble exceptions as Count Rumford and the present German Ambassador to France. It is a singular state of ethics that the medical profession are not called in to make out the menus for tables and banquets just as they do for the Army, Navy and Hospital Marine. Many a time has a physician's good work been upset by a Delmonico dinner eaten without any regard to its physiological, pathological, chemical, kinetic, potential or physical relations! To be sure the aesthetics of taste, smell, sight and touch are allowed by the cooks full sway as to food in these cases—but the point is that medical knowledge is not invoked so that the dinner will round out into its full proportions of efficiency in all directions of good health. If more medical supervision was exercised there would be much less bad cooking and less occasion for the remark that "God made good steaks but that Satan spoilt them in cooking!" It may be because cooking is considered a drudgery that the present state of medical ethics towards it exists. But after what has been said here as to the etiology of food diseases it certainly is a matter of the greatest importance for medical men to look out for the interests of their patients as to cooking. I have known one badly cooked beefsteak to restore the haze of albumen, casts and fatty epithelia to urine which had become clear after fourteen days of hard strict watching and care. I have no doubt physicians now get the reverse of praises because their good work has been undone by badly cooked food.⁶

FASHIONS IN FOOD.

While it is the fashion not to have any children, or having them in spite of fashion, not to *suckle*, of course artificial foods are in demand and normal lactation is at a discount, no matter what the medical profession teaches to the contrary. Just as women will environ themselves with strait jackets (corsets) no matter what doctors say and no matter if they fall dead as one did lately in New York at a ball, killed by tight lacing and probably the fatty degeneration that came from a languid and impeded circulation caused by tight lacing.

A debt of gratitude is due to those who prepare good food substitutes for such a deficiency caused by following the fashions. Some time ago some vendors of infant foods claimed that their wares were better for babes than the normal breast milk, but this claim is withdrawn now. (If mothers would live on a diet of two-thirds animal and one-third vegetable, they would have milk enough, as I have found from my personal experience).

There are some artificial foods which do not

⁵ Morphology of syphilitic blood. Am. Jour. Dental sciences, Oct. 1879. —Throat syphilis and tubercle according to Salisbury. Arch. of Laryng. N. Y., Dec. 1880. —Blood changes in syphilis treated by the McDade Fluid Extract Stillinger. Gaillard's Med. Jour. Feb. 1881. —Crypta syphilitica, Monographia syphilitica, Sept. 1888.

⁶ Food as an aesthetic, chemie, physiologic, pathologic and therapeutic. Am. Jour. Med. science, Jan. and Feb. 1880. Baked Beans, a serio-humorous medical paper. Alb. Med. Annual, Feb. 1887.

verify their claims, and all claim to be the best for monetary if not monopoly reasons. It is the fashion to reach every physician in the land with food advertisements; the more money made on the food the better the advertisements. The tone of these advertisements is humiliating to the medical profession, as they take it for granted that no one knows anything about these foods but those who write the advertisements. They even instruct almost every other department of medicine and assume a superiority of medical knowledge over those who it may be have studied medicine longer than the self-styled instructor has lived. One such in my own office, a lad of eighteen years assured me that sugar in large excess was of no harm in medicine. But I had learned that it would return albumen to the urine and yeast to the blood whence it had taken time and care to eliminate them by stopping off sugar and kindred hydro-carbons. There is this to be said: So long as the medical profession refuse to study the action of common foods on the body till thoroughly understood, just so long dietetics will be a terra incognita, and I do not see how any medical man can be blamed for doing what he can to enlighten the darkness of so important a subject and to wake up fashion to take a sensible view of food.

Once it was the fashion for women to wear thin soled shoes and many were supposed to get ill from this exposure, but now happily it is the fashion for women to wear thick soles; I heard a man say before the fashion changed that if women were weaker than men, they ought to wear thicker shoes than men. A sensible view to take, and shows sensible fashion.

Would that it might be the fashion for wives so to feed that lactation could be possible for two years. They do this better in Japan. The Japanese minister to this country in 1886, Hon. R. Kuki, told me that it was not rare to see Japanese children suckled to the age of ten years! Rameses II, the Pharaoh of Moses time in an intaglio, is depicted as suckling the breast of the goddess, Isis. His figure is of a youth of seventeen years standing and sucking the left breast while the goddess with her right hand embraces him! Pharaoh wished to show his descent from the gods—but as this symbolical picture at the age of seventeen months would have answered just as well as at seventeen years it seems as if it was the custom for the Egyptians to suckle children to the age of seventeen years. To us the intaglio seems impossible, but a patent nursing bottle and a child of seven months would come near the ideal of conventional suckling of to-day which too many doctors recommend.

AMERICA IS OR SHOULD NOT BE BEHIND IN COOKING.

It is often truly said that America has means of cooking to excel other countries: 1. As to things to cook, and 2. as to things to cook with.

1. Nature has lavished on America a splendid soil and cultivation, and Congress has appointed a department of Agriculture in the President's Cabinet to look after food production and these wise national provisions have already redounded to an abundance of food products not elsewhere seen. America is the granary of the world and its store-house of cattle. One feels proud of what has been done and all medical men should sustain the Agricultural bureau of our government. The subject of American food products has lately been a matter of great diplomatic discussion and legation management with the nations

of Europe, and European people live better because of our agricultural harvests.

2. I often think that Count Rumford's heart would leap for joy if he could see the modern appliances for cooking used in America, and that he would be displeased with his successors for not awarding his prizes to manufacturers of all sorts of cooking implements such as are everywhere seen in America; the modern cooking stove for example is a marvel of fine iron casting and of a skillful application of the principles of heat. The oil stoves—the steam cooking apparatuses, the common closed baking pans where high steam is used, the bilateral cooking of beefsteak, the cooking by gas are very worthy of commendation. But with all these advantages it must be owned that there is too much bad cooking in our fair land. In place of good coffee, bad coffee is common, spoilt in the preparation; steaks are fried to become like leather, and so on through the list. I have labored so long in this field and with seemingly but little good result that I believe the ethics of bad cooking cannot be changed unless physicians organize and continue to work to promote a healthy public opinion as to this most important matter. The American Medical Association should endorse the sentiment that bad cooking results in physiological sin and is a crime against the very woof and warp of society, by cheating it of its inalienable rights, just as dear as those were that our Revolutionary fathers fought, bled and died to secure from King George III. How much use is it to have free citizens if they are condemned to eat badly cooked food which causes weakness, sickness and disease!

The ethics practiced towards Dr. Sylvester Graham who years ago advocated facts about wheat bread which are now accepted show the slow and conservative ways in which things are sometimes done. I remember as a boy how much he was talked against and persecuted. But now that all the actors have passed away it remains for some one to give him due credit and justice.

The physiological and pathological effects of food used exclusively and singly, on the blood, sputum, feces, on the nervous system and the alimentary canal have not been studied by physicians enough on man; a few have done it well, but their reports are not received by the profession in general and are often scouted mostly on personal grounds which should not enter into scientific investigations. It is far better to simply repeat such work and see if it is correct, giving the phenomena free chance and scope; then if the facts are not sustained, controvert and condemn; but in this age words and arguments not based on facts are worthless. As one has truly said, the present age has a very strong magnifying glass and applies it too for the bringing out of truth, which stands all tests.

Ethics of food based on facts will stand the test of time and prove of lasting value. Hence it is our duty to change all our false ethics and act in accord with truth and justice and then shall we truly honor our profession and add new lustre and glory by its beneficent acts.

A Throat Specialist's Opinion.—Lately writing he says: "I do not know any food to cause or cure diseases of the throat." Now I know that oat-meal will cause sore throat, and a lay-man once told me he would not eat oat-meal because it made his throat sore. *I know also that some coughs depend mainly upon the irritation produced by gravelly deposits*

in the expectoration made up of crystalline matters such as are found in the urine and feces, the natural exits of these saline deposits. These deposits are caused by living on too much food from the vegetable kingdom so that the natural channels of elimination are not able to expel them. Asthmatic coughs come under this head. *Pharyngitis sicca* I have seen relieved at once by a liberal diet of hot water and animal food. To my mind such facts as these are sufficient reasons for connecting the cause and cure of throat affections with food. Perhaps my opinion in laryngology as to food is not authoritative; however, it is now thirty-four years since Alvan Clark made for me a laryngoscope and twenty-six years since I first did thyrotomy without tracheotomy for the removal of intra-laryngeal growths, and while my practice has not been limited to laryngology or gynecology, or the chest, or making diagnoses with the microscope, I have endeavored to do what might be called an all round work and thus my labor with the microscope and on foods has demonstrated to me clinically that intra-laryngeal growths are amenable to food treatment.⁷ We forget often that nature is all the time trying to cure lesions in the throat (which never rests) as well as in other parts of the body, and if she has the right food to do it with she more often succeeds than when the bad food cause is kept going all the time.

The ethics of medical agnostics are sometimes amusing despite the serious consequences they often produce. A noted statesman lay seriously sick; eminent medical men examined him and finally after consultation told him he could live but a few hours; he asked them to leave him alone, but they replied, "You are dying and need us!" "Why do I need you if I am dying; leave me alone and let me die in peace;" the medical men went, the old man took a big pull of brandy and lived several years. It is no uncommon thing to see in the daily press notes of Blank's serious illness, that all hope had been given up by his physicians two or three of whom were constantly at his bedside. (It is no wonder a man does die when he has several doctors constantly attending him, presaging death.) But some of these cases live several days longer than the time allotted for them by their medical advisors and as in the case noted, sometimes they get well in spite of the doctors. These medical jackals are a drag on the profession; if one tries to enthuse hope in a seriously sick chronic case and with hard work, patient labor and much anxiety endeavors to start the patient toward health, such will do all they can to hurt and hinder; these are harsh words but they are true and need to be spoken in such an address as this.

"Eat what she pleases."—"Doctor, what shall I give my girl to eat" was lately asked by a mother whose daughter aged 14 had a lesion of the spinal column and whose breakfast was made up of a cup of coffee and a little toast, and who immediately went off to attend school all day. The answer, "eat what she pleases." Now I suppose this is a typical answer and fitly represents the state of medical action, if not opinion, at the present time among a large class. It was honest no doubt as the physician believed what he said sincerely. But as one can be sincerely

wrong or right, sincerity does not cover the ground of this action. Under the present medical ethics I do not see how the busy practitioner can come to any other decision. To be sure there are writings enough about food but there is a great lack of writings to show how foods do act on the system as verified by chemical, morphological, physiological, pathological, culinary qualitative and quantitative tests, on man as a race.

For example take *quantity*. Water hot or cold taken in moderate quantities as food is essential to human life. But put a tube down a man's throat and attach the outside end to a hogshead of water and turn the water on and the result would be disastrous. Quantity should be normal.

Quality.—Some mushrooms are edible; other mushrooms are inedible. The quality of beef makes the greatest difference. Quality should be good.

Cooking.—Bad cooking is notorious for its bad effects. Good cooking is celebrated for its good effects. It should be good.

Pathological tests.—Carbo-hydrates in excess will put yeast in the blood, albumen in the urine, cataract in the eyes, to name no more.

Physiological tests.—The diaphoresis, diuresis, peristalsis downwards, the thinning of the blood, the solution of salts by drinking hot water is an example. The tests should show normality.

Morphological tests.—These include the normal morphologies of blood, urine, sputum, feces, skin, which vary to abnormal when improper food is eaten. These should be normal.

Chemical tests.—Albuminuria, glycosuria, oxaluria, etc., are removed by excluding certain foods and brought back by a resort to those foods again.

The standard of healthy secretions, I prefer, is found in a healthy babe suckling a healthy mother's breast.

These are the tests the writer approves of, and which he thinks the profession should employ in dietetics.

MEDICAL FOOD ETHICS TO COME.

These will be given by public opinion unless the profession does. People are finding out that medical men must care for the food question. Hon. Chauncey M. Depew, LL.D., the noted after dinner speaker on both hemispheres, the orator on great national and collegiate occasions has his popularity based on gracefully voicing public sentiments, and what he says reaches such a large number of people that his utterances may be taken for a fair index of popular thought on almost any subject he desires to discuss. He lately said that soon physicians will prescribe what people should eat at banquets and all other occasions. It will not be the first time that public opinion has compelled physicians to take up neglected departments of their art. The late Dr. Benjamin Cutter, my father, told me that in Massachusetts about one hundred years ago there were so many wives dying in child-birth under uneducated mid-wives that Governor Brooks and other men of influence, made a determined effort and compelled the physicians to become obstetricians with the result of lessening the mortality and changing the fashion from female to male obstetricians.

The air is full of the food question. All classes of people are interested in it, that is, if one can judge from observation and when the people rise to the height of compelling physicians to treat diseases by

⁷ On the laryngoscope and rhinoscope, Boston Med. and Surg. Jour., 1861, 1866, 1867. Case of aphonia cured by extirpation of a neoplasm on the vocal cords by laryngotomy, Am. Jour. Med. Science, Oct. 1866. Sequel to a case of laryngotomy, thyrotomy, Arch. of Laryng. Oct. 1882. Laryngological contributions, Journal Am. Med. Assoc., 1889.

food and make medicines secondary matters, there will be not so much difficulty in getting papers for this section as there is now.

Experiments.—Experiments in feeding are going to be carried out on a large scale so that we shall know if the experiments that have been made are correct and on a broad basis, and if not correct to right them so that the physician shall know just what to prescribe. Such experiments will lead to *Chairs of instruction on foods in our medical colleges.*

Physicians (not pharmacists, who are not educated to be clinicians) are to be the teachers and authorities on foods. I do not attack pharmacists for the work they are doing on foods, but instead the idea that clinicians have neglected their duties in this line; I believe that possibly my letter published in THE JOURNAL Dec. 19, 1887, started the movement that resulted in the Section of Materia Medica and Pharmacy in our Association. I am truly a friend of pharmacists.

Possibly the need of physicians will be lessened, as lives will be lengthened and the sum of human weal increased, but the legitimate business will be work enough for scientific clinicians who will cure disease by preventing it, and such work will be better paid than now.

Character of the Food Work.—It will probably be national as the nation which is best fed will, other things being equal, be the one to conquer the others in war. Nations will evolve by good feeding and devolute by bad feeding. Beef has made Britain great in war. Diseases will be treated by prevention rather than by cure, by removing *prime* causes rather than by removing results of these causes or the secondary cause. The relation of germ diseases to food will be understood to depend mainly upon a weakening of the dynamic forces of the body systemic by bad feeding thus rendering it a prey to parasites. When medical men will be able and willing to do their duties as to food, so that their wards are in good health by avoiding the causes of ill health and sustaining the body systemic in a normal condition, the heights to which intellectual, moral, scientific and religious culture will go are simply beyond the conception of thought.

The Bible tells us that the fall of man came by eating forbidden things; the words health, hale, holiness, all come from the same root. I believe there is such a thing as physiological sin, and that if we had sound minds in sound bodies there would be less sin and crime than now. The late Dr. West of Princeton, Mass., suggested that the great use of tobacco might partly be explained by people living on flour deprived of its normal mineral constituents; hence the starved nerves "cry out" for more food and men stifle these persistent neurotic cries for proper food by narcotizing themselves with tobacco! I think it may be so, for I have heard of drunkenness being cured by eating beefsteak when the desire for drink came. In my opinion the present great prevalence of diseased nerves, eyes, ears, teeth, hair, bones, the asthenic type of disease—the decline of the normal increase of our native population, the prevalence of tuberculous diseases—to name no more—come from the too exclusive use of carbo-hydrates so popular in fashionable and unfashionable life—and that common flour is one great food at fault, because society demands that bread should be *white*, and hence impoverished of its phosphorous bearing gluten and mineral soluble salts.

CONCLUSIONS.

It has rarely been the fault of the medical profession to stand in the way of the best means of treating disease. Indeed, as public opinion governs all things, so is the profession held back from its legitimate work by a lazy public opinion, so a little earnest thought by the great mass of people on their relations to medical men would be of great assistance to us. I think medical men do not comprehend their real power in the community, and if on these food questions after thorough examination an opinion is given and concurred in by the profession, public opinion will wake up to the full importance of the subject.

All I ask now is that before condemning or endorsing the views here put forth, the honored and honorable members of our Christ-like profession will examine for themselves the truth. If they have not done so already, they should experiment on animals (themselves the best animals to employ) by living on single articles of food and study the blood, feces and urine and see if the standard of perfect health is kept up. Those who will not do this on animals must keep silence when their opinions clash with the facts already given.

Dr. Sims, a late President of this Association, once told me to give details whenever I presented any subject—so I will try to follow his directions, *i. e.*

Medical Food Ethics to come in the Sections of the American Medical Association will, according to my best knowledge and belief be somewhat as follows, provided general experience coincides with the experience of some American physicians.

The Section of Obstetrics and Diseases of Women will use its influence to have food in motherhood beginning with the erection of the family altar and kept up till the children have outgrown the family home by feeding on a diet of two-thirds animal and one-third vegetable food,* and thus many difficult labors will be avoided, I think even those from contraction of the pelvis, convulsions from fatty degeneration, flooding from want of tonicity. There will be plenty of breast milk so that it will be unnecessary to use artificial foods. Children thus fed before and after birth will have good constitutions, other things being equal, which is a great thing to have in such a world as this.

As to *Diseases of Women*.—Should this Section adopt the views which the writer thinks are correct, to-wit—that a great deal of gynec disease can be best handled by prophylactic and post-phylactic feeding as a foundation, then will their ethics include a regulation of the diet of women even before their birth.

The writer knows of cases of uterine fibroids cured by diet. He believes that in cases of ante-flexion where the uterus has been kept in place by a topographically correct pessary, if a proper diet is enforced that the relaxed and stretched ligaments will by nature's own processes be restored to normal length. The stretched ligaments will become shorter and the shortened ligaments become longer; the vaginal muscular tissues will resume their normal tone and contraction, and with these results the uterus will stay in place (normal) after the artificial support has been withdrawn. He speaks from experience.

When a case of laparotomy is in good order from

* Food in Motherhood, London, D. Stott, Pub'r, 370 Oxford St.

feeding, the progress of the case is very satisfactory. An extra-mural fibroid was once removed from the fundus of the womb by one of the great American gynecists; the case had been under diet for its removal, but not satisfied with the slowness, the knife was resorted to, over fifteen years ago, with perfect success and the delight of all concerned.

The writer has reported a few of his cases of fibroids treated by food, and in a table appended here gives more case histories with those of patients sick with what was called cancer. It has been my experience and that of others to find in every case of cancer that came under our observation a history of great loss of nerve force from shame, poverty, grief, excessive worry, over hard work and improper feeding, and hence my definition given in 1887 of cancer being "tissue under mob law."

The Section of Surgery and Anatomy in my opinion will be decided in its utterances as to the food of their subjects. A late case is in point: A man was on diet for syphilis; in exposure in a boat off the Massachusetts coast, with hard rowing in rather cold weather, unused to work, he had a bone felon in the palm of his right hand, took cold in it and he went to a local surgical sanitarium in Boston. The writer, as the patient said, made quite a mental commotion in the institution by ordering porter-house steaks to be freely eaten; the orders were obeyed, and the attending surgeon said he had not seen a like case do so well.

Again, diet is better than surgery, sometimes, and if more largely practiced, would be many times. A case of empyema of long standing was brought to me, a man of about sixty-five years; he had been advised by the surgical staff of the Massachusetts General Hospital to have an ex-section of a part of a rib, though, with all due respect to their learned opinion, I never could see how removing a section of the rib was going to bring about a normal condition of the pleura. I told the patient that if he would live on beef and beef alone (N.B.—I never did and never do prescribe raw beef), I thought that nature would cure him. He followed the advice and was reported as cured in less than a year. It is said that prize-fighters after training, which includes dieting, sustain injuries in fights which look very serious, but which heal up with little or no trouble. When a subject of any surgical operation is filled up with gasses from fermenting food, or more or less undergoing a fatty degeneration from languid and impeded circulation from paralyzing foods, when he is half starved on improper food, depressed by food that is hard to digest, from bad quality, quantity or cooking, to name no more, he is less liable to make a good recovery than if he was in line with dietetic normality. This is on the principle of not wasting force on abnormal environments, and thus having it to use in the repair of the lesions left by the surgeon. Oftentimes surgical operations are upset by colds. Now, patients fed rightly are not apt to take cold, as the blood corpuscles are not huddled or stuck together, the fibrin filaments are of normal fineness, there are no skeins of fibrin, nor blood crystals, all which make active factors in the apparently simple process of taking cold; the blood driven from the surface of the body by the application of cold congests the weakest internal organ and stays there because of the abnormal physical features named above and which can be removed by good feeding. This is an age of germicides in surgery; now, there

is nothing better to resist germs, than healthy tissues made so by good feeding. We are all of the time surrounded by the germs of disease which do not infest us if our health is good and normal. Depress that health, and the germs will be more apt to take root and grow. Peach blight is a result, not a cause.

Food relations to the Surgeon.—If dyspeptic clergymen will write dyspeptic sermons, then dyspeptic surgeons will be apt to do dyspeptic surgery. A surgeon needs a clear, level head, a keen eye, an educated touch, a strong heart, a velvet, but firm and steady hand, and withal an executive ability that is ready for emergencies and for the unexpected, which is sure to happen. But how can these requisites be had if he live on baked beans or other foods which are difficult to digest, cloud the mind and take away his nerve and verve? Nor do I think that surgeons who drink liquor or are soaked in tobacco, which some almost eat, can do the best work, for their hands will shake under fire.

Pathological Anatomy is built on bad feeding which is the strongest agent in the production of diseased structures.

Section of State Medicine.—The food ethics of this Section relate to the alimentation of the army, navy, marine hospital services and the people in general. It could well embrace the duties of our Section of Dietetics. It should have more to do with State and National laws about food. No matter what else is valuable in a State, healthy citizens are the articles of highest value. They cannot be healthy citizens without proper food.

The subject of diet for travellers is of State importance. Certainly if articles of food, like hogs and cattle for example, are matters of governmental care as shown by the Quarantine inspection for trichinosis, and the cattle pest, and the ethics of transportation, to name no more, the proper manner of serving up of these articles of food on the rail or boat, at stations or hotels even, are matters worth the solution of State Medicine. This position is one argument in favor of having a Secretary of Public Health in the President's Cabinet, an event greatly to be desired.

Section of Ophthalmology.—If it is true that sugar affects the eyes as aforesaid, certainly this Section has something to do with food. If it is true, as one ophthalmologist asserted, that nine-tenths of eye diseases were due to deficient or improper feeding, I think the position is correct. Inattention to the food question by this Section is an ignoring of the rational treatment of all diseases, to-wit—removing prime causes. The writer wishes this Section would heed these words and teach these specialists who cannot begin to meet the demand for their services caused by love of sweets in foods.

Section of Laryngology and Otology.—From what has been said above, this Section cannot afford to ignore food. Besides topical applications, such as iodoform, iron, nitrate of silver, etc., as Dr. Louis Elsberg used to say, act mainly by stirring up things in the hope that they would settle down in a normal condition, as the atmosphere does after a thunder storm. In other words, nature is the healer, and the more the recuperative powers of nature are, the more successfully will things settle down. In no way does nature get more force for the human body than from proper feeding. I have known laryngeal growths so voluminous as to cause aphonia, disappear without

any but nature's treatment. And as I have known large fibroids to disappear under diet, it seems fair to infer that in the constant laying down and taking up of body tissues, normal structures can replace throat growths when nature is fully supported by good feeding. I have known enlarged tonsils, flabby throats, pharyngitis sicca and catarrhs to disappear under diet. When coughs are caused by gravel in the sputum, gases in the alimentary tract from hard digesting foods, or foods in excess, from fibrous hypertrophies, to name no more, I know there is nothing like the food treatment to remove these prime causes.

(To be concluded.)

SOCIETY PROCEEDINGS.

The Medical Society of the County of New York.

Stated Meeting, Monday, January 23, 1893.

DR. CHAS. CARROLL LEE, PRESIDENT, IN THE CHAIR.

Dr. Simon Baruch read a paper on

PRACTICAL DATA ON THE APPLICATION OF WATER IN SOME INTRACTABLE DISEASES.

The recent revival of hydrotherapy is an interesting phase of therapeutics in this country. Three years ago the first paper, giving a general review of the uses of water external and internal, by lavage, irrigation, baths, etc., was read before this Society. Therefore the history of this subject is closely bound up with the history of this Society. Articles on this subject have now become numerous. A new journal has appeared on balneology, and a department in that magnificent specimen of American journalism, the *Annual of the Universal Medical Sciences*, chronicles the advances in this therapeutic specialty. Indeed, a recent letter from Dr. Winternitz, Professor of Hydrotherapy in the University of Vienna, refers to the fact that more is now done in this country for hydrotherapy than in Germany, its birthplace. For this reason I venture to offer some practical remarks on this subject.

The chief, though not the only aim of hydrotherapy, is to stimulate or give tone to the nerve centers. Since all vital energy emanates from the latter; since the proper performance of all the organic functions depends upon their activity, it is fair to deduce important therapeutic results from this agency, which influences it so potently. The main question is, does the application of water to the cutaneous surface stimulate the nerve centers? That this is a trite physiological fact, is daily observed in the effect of a dash of cold water in reviving a case of syncope. Here we have a brief shock to the sensory peripheral nerves, followed by reaction, whose effect is transmitted to the central nervous system and thence to the respiration, deepening it and the circulation, restoring the falling pulse; thus the temporarily dormant vital powers receive a stimulus whose appreciation must convince the most skeptical by its very simplicity. At this time I do not propose to dwell upon the various modifications which change in the temperature of the water applied to the cutaneous surfaces may produce, nor the remarkable difference of effect resulting from the increase of the pressure under which it strikes the skin, nor the valuable results of changes in the duration of the procedure.¹ Suffice it to say that we have in the external use of water a therapeutic agent so flexible that it may be adapted to the most varying types and forms of disease.

The following brief outlines of cases are presented in order to enable you to obtain a view of the practical application of hydrotherapy to some intractable chronic diseases, to demonstrate its flexibility and to point out the methods of adapting it to varying conditions.

Intense Chlorosis.—Miss H., *et.* 20, ill two years; under constant treatment by gynecologists in Harrisburg, Baltimore and Philadelphia, was brought as a last resort to Dr. T. G. Thomas to be placed in his sanatorium. Dr. Thomas discovered no uterine trouble, and referred her on June 8, 1892, for hydragric treatment, with a diagnosis of chlorosis of aggravated type. Local medical and institution treatment, iron, arsenic, diet and massage, and change of air had been tried in vain. Although the patient was plump, a more pallid creature could not be imagined. The slightest exertion produced difficult breathing and rapid heart action. Menstrual flow was regular, but scant and very pale. Blood examined by Fleischl's hæmometer registered 31 per cent.

June 10. Preparatory treatment by hot air baths and douches, to educate the patient's reactive capacity, was ordered. Fainting in the hot air bath, she was removed, a spray douche of two seconds at 64°, with 20 lbs. pressure, was rapidly passed over her, in a sitting posture. She again fainted. Friction produced no reaction.

On the following day a milder course was pursued. She was gently wrapped in a long-haired woolen blanket for forty-five minutes. Parts of the body were successively uncovered and splashed with water at 60°, thrown with some force from the hollow hand of the attendant. This was followed by friction, and continued until the whole body had received the ablution and friction. The same treatment was continued on the 11th and 12th, when she fainted twice. This was repeated without fainting until the 16th of June. She was again placed in a hot bath (167°) with a cold compress around the head, and given frequent sips of ice-water. The head not being subjected to the heat, the patient was enabled to breathe the cool air which permeated the room. When the cutaneous vessels became turgid she was seated in a tub containing eighteen inches of water at 100°, thoroughly rubbed for three minutes. This was followed by an ablution at 60°, good friction drying and general massage for fifteen minutes. She fainted twice during these procedures.

July 8. The last treatment had been continued, reducing temperature of the spray douche daily one degree; to-day she had an air bath (160° F.) followed by spray douche under 30 lbs. pressure for five seconds, beginning at 80° and rapidly reduced to 50°, followed by fifteen minutes' general massage. She reacted well and felt comfortable.

July 14. Same treatment has been continued. To-day she had a hot air bath (175°) followed by rain bath thirty seconds, at 94° reduced to 69°, then spray douche ten seconds 79° to 54°, and general massage. Reaction good.

July 30. This treatment has been continued until to-day she took a jet douche at 45° without flinching. Being absent in Long Branch, I wired Dr. S. T. Armstrong to examine her for me. Dr. A. reports: Miss H. looks quite well, eats and sleeps well, and is certainly improved since I last saw her. The comparison test indicates about 100 per cent. hæmoglobin.

August 1. Miss H. left for her home in Pennsylvania. This case certainly illustrates:

1. The effect of the douche in improving the nutrition.
2. That hæmatosis may be enhanced by the stimulus conveyed from the periphery to the nerve centers and thus reflected upon the blood-making functions (as has been well shown by Winternitz, Thermes and others).
3. That the most feebly reacting patient may by perse-

¹ See "The Uses of Water in Modern Medicine," by Simon Baruch, D. Detroit: Geo. S. Davis.

verance and proper adaptation of the hydriatic procedure, become accustomed to this treatment. The danger of shock from cold water is proven to be chimerical by this case.

If this fragile and sensitive young woman could be accustomed to the douche by beginning with mild procedures, no chronic case that is not *in extremis*, could fail to respond to it.

Nervous Dyspepsia—Anæmia.—Mrs. O., æt. 28, resident of Florida, consulted me May 3, 1892, for "catarrh of the stomach." Because of agonizing pains after meals, she has been living on mush and milk, and has had medical treatment for several years, with diminution but not disappearance of the pains.

She is emaciated, her voice is feeble; she is depressed and hopeless. Her wan face and prematurely old appearance bear evidence of a life of constant physical suffering. There is not the particle of the hysteric element in this case. Ordered at 12:30 P.M., a full test meal at Delmonico's, which she reluctantly accepted, because of dreaded increase of pain. Returning to my office at 5:30, the stomach was washed out without difficulty. To her surprise my prediction that her dinner would be digested was verified, a little tomato peeling being the only remnant visible.

The diagnosis of a gastric neurosis being thus confirmed, she was ordered a mixed diet, chiefly consisting of hot milk and stale bread and hominy for breakfast, adding eggs (soft boiled later) same with fish or oysters for luncheon, and steamed rice and roast beef for dinner. Dessert and salads forbidden. The general invigoration of the entire system being the chief therapeutic element in this case she was at once placed upon daily hydriatic measures as follows:

May 6. Hot air bath at 169° for six minutes filled the cutaneous vessels of her pallid skin and produced free perspiration. This was followed by a tub bath of water at 98°, for five minutes and a rain bath of 95° reduced to 90° for $\frac{1}{2}$ minute at 20 lbs. pressure for the purpose of increasing cutaneous action. A tonic procedure by the spray douche at 90° for five seconds, with friction, closed the first treatment and resulted in good reaction.

On the following day she remained in a hot air bath at 164° only long enough to render the cutaneous vessels turgid to promote reaction from the rain bath for 30 seconds at 90° reduced to 80° and a spray douche at 70°. Reaction very fair.

May 11. Temperature of rain bath was reduced to 75°, and a jet douche at 65° was added. Reaction good.

May 23. Same treatment with jet douche to back at 60°.

May 25. Complained of sciatic pains on right side. The Scotch douche was applied to the gluteal region for 30 seconds followed by jet douche of one second at 59°.

May 31. On account of menstruation treatment had been omitted for six days. Sciatic pain is relieved. Treatment of May 11 resumed.

June 12. Temperature of rain bath reduced to 70°; patient has been steadily improving in flesh and spirits, being free from pain until to-day. The addition of cauliflower to her diet reproduced pains. Stomach was washed out and some mucus found in it.

Temperature of jet douche was raised to 60° as patient was excited by it.

June 19. Jet douche suspended; hot air bath 180° followed for 40 seconds by rain bath of 75° reduced to 65°. Stomach was washed out again.

June 20. Pain returning, the constant current 12 milliamperes was applied by a large flat sponge electrode over epigastric and a small one over lumbar region.

June 27. Temperature of baths having been higher, were now reduced, patient being again depressed. The jet douche was given at 50° for 3 seconds. Reaction good.

July 9. Electricity having been unavailing and there being fermenting material found in the stomach, the Scotch douche has been applied to epigastric region for 30 seconds after the rain bath 70° to 45° daily, and followed by jet douche at 50° or 3 seconds. Patient now feels sufficiently restored to go to Buffalo to her parents.

Under date of November 26, 1892, she writes that she has gained fifteen pounds in weight and is much stronger, etc., has continued the diet prescribed, because, like most of these neurotics, she "feared her stomach was not equal to much of a change." Most of the time she is entirely free from pain, she has slight distress every now and then, but expresses the warmest gratitude for the help given.

This case is similar in many respects to the case of Dr. H. reported in "The Uses of Water" pg. 85 Vol. I and S, demonstrating the value of hydrotherapy in improving the nutrition and thus furnishing better blood to the stomach nerves, which are calling for it through pain.

Diabetes and Obesity.—Failure of Diet.—Success of Hydrotherapy.—On March 7, 1892, I was consulted by Mrs. S., wife of a prominent police official, æt. 63. She had been suffering from lassitude, loss of appetite and depression of spirits for several months; had been relieved of muscular rheumatism by wet packs and massage a year ago.

Examination of urine reveal 6 per cent. sugar by fermentation test, spi. gr. 1040, quantity in 24 hours 51 ozs. She was languid and indisposed to exercise, weighing without clothing 252 $\frac{1}{4}$ lbs. on the 21st of March. An antidiabetic diet was ordered and systematic walking exercise. The former was rigidly adhered to for four weeks without effect, the latter could not be accomplished because walking two blocks "put her out of breath," and exhausted her. Acting upon the well known physiological fact that next to the liver the skeletal muscles hold most glucose, and that sugar is by exercise of these muscles best utilized for the benefit of the organism, I regard systematic exercise of quite as much importance as diet. I have the record of six cases in which these two combined entirely and permanently removed the sugar from the urine. A strict diet having failed in this case, it was important that some therapeutic method be adopted to enhance the patient's capacity for muscular exercise. It was determined to reduce her weight and invigorate the nervous system by a carefully regulated hot air bath until free perspiration ensued, once a week, followed by the spray douche at 90° for $\frac{1}{2}$ minute, and at 80° for ten seconds, this succeeded by active massage. Five times a week she received a tonic hydriatic procedure beginning on the 28th of March with the dry pack for $\frac{1}{2}$ hour to fill the cutaneous vessels, followed by a general ablation at 70° and good friction. Patient attended daily, coming from her home on West 152nd street in a carriage, as she was unable to walk.

On April 15, she had lost 61 lbs. and felt able to walk six blocks twice a day.

April 22. Urine showed spi. gr. 1035, sugar 5 $\frac{1}{4}$ per cent. Wet packs 45 minutes, sheet wrung out of water at 50°, followed by hot air bath 10 minutes at 85°. Sponge ablation on back at 70° with active friction in tub—massage 15 minutes. The object of this treatment was to increase tissue change and improve the circulation in the muscular tissues. This was continued until the 6th of June, the jet douche at 75° being added as a tonic and for contracting the muscles. The result of these procedures was ability to walk more every day until she was not fatigued by four miles per diem. The diet being rigidly adhered to, a rapid decrease of sugar was evident every week from the date of the first half mile walk.

Since July 1, she has been entirely free from sugar until the present time; frequent analyses having been made until the 1st of December, 1892. In this case the diet alone

pursued for five weeks made no impression, but as soon as the patient was able to oxidize her sugar by means of muscular exercise, improvement became pronounced. No medicinal agent could have accomplished this change in the nervous, muscular and vascular structures in so brief a time, if at all. Of this I am convinced by other cases similarly treated.

Diabetes cured by Diet and Hydrotherapy.—Mrs. Dr. B., æt. 65, applied for treatment for a severe herpes zoster on the left part of the back below the scapula. On the evening of April 4, 1890, I was hastily summoned, after I had treated her for herpes on the preceding afternoon. She was absolutely comatose without any reflexes, etc. Drawing some urine by catheter I found no albumen, but decided evidence of sugar, this being its first discovery. Towards morning she became conscious spontaneously and began to improve. On the following evening she was seen in consultation by Dr. A. J. Loomis. She continued under the treatment, chiefly dietetic and codeia and constant current for severe neuralgic pains at former seat of herpes. Sugar has been almost constantly present in small quantities one-half to one per cent. During the winter of 1892-93 she decided to take a thorough course of hydrotherapy, encouraged by the patient whose history is given above and who lives near her. The same treatment had not the slightest effect on the urinary sugar. But she regarded herself to be so much invigorated and capacitated for work and exercise, that she voluntarily takes the treatment twice a week as a tonic agent.

Sexual Hypochondriasis.—Failure of Hydrotherapy.—M., æt. 47, was referred on June 5, 1892, to the Institute by Dr. J. Weir Mitchell, of Philadelphia, with the following history (here abbreviated): Patient complains of impotence and a sensation of water trickling down front of thighs. Habits good, had three children all dead; two died at birth. Three years ago when his wife was absent he first discovered the trickling sensation. On her return he found sexual desire present but was incapable. Emission occurred and still occurs in sleep. Had two strictures cut without relief. After being in the mountains a year ago he had two successful connections and again in November, 1891; more frequent emissions and firmer erections during sleep. These are rare now. Present state—stout man abdominal pannus; uro-genitals, cremaster reflex absent; paræsthesia along anterior crural nerve; electrical examination negative; sleeps well; appetite good, no sperm in urine.

Dr. De Schweinitz pronounces eyes normal. Dr. Mitchell regarded patient as suffering from some slight, but distinct trouble of the lumbar or dorso lumbar cord, dread of sexual failure is probably emotional; full recovery of power is probably not to be looked for. Advises electricity (detailed) also douches alternating warm and spinal column.

Treatment at Institute June 5.—The patient's peripheral circulation being feeble, skin flabby and inelastic, pulse compressible and a general aspect of mental and physical depression being present it was thought advisable to give him tonic treatment as follows: A hot air bath (170°) for twelve minutes having warmed him up, a rain bath of 100° reduced to 80° during 45 seconds was given under 30 pounds pressure. General massage was given for fifteen minutes. Reaction was poor.

June 6.—Hot air bath (178°) 10 minutes; rain bath 95° reduced to 70° during one minute, was followed by Scotch douche (alternating hot and cold stream) to spine. Reaction poor.

June 11.—Same treatment was continued reducing temperature of douche daily one or two degrees and increasing pressure. Reaction is now good and patient looks brighter.

The perineal douche (jet) of 60° for one minute is now added for psychic effect.

June 12.—Patient dissatisfied, does not think he can improve by having a little cold water sprinkled on him and insists upon more active measures.

June 16.—The psychrophore of Winternitz (a small rubber or skin bladder secured to a double current straight rectal tube attached to an irrigator) is applied for five minutes with water flowing at 45°.

June 19.—Patient looks brighter, but insists that, without any test, his sexual power has not improved. He leaves for Chicago to-morrow and tells me that without my knowledge he had been under local treatment by Dr. E. L. Keys while he was under my care.

The other two cases of sexual hypochondriasis, of a milder form and in younger men, were successfully overcome by the treatment here outlined.

Sexual Neurasthenia.—Recovery under Hydrotherapy.—In a man aged 25, the tonic treatment by hot air baths followed by rain baths and jet douche to spine, gradually lowered to 45° was positively efficient in establishing a satisfactory condition. This gentleman applied for treatment for general debility. He was not a sexual hypochondriac, because he incidentally mentioned that he had been married six weeks, and did not experience the feelings that he had anticipated from sexual congress, to which he had been an entire stranger before marriage.

After two months treatment he volunteered the statement that he was entirely satisfied with the results.

Angina Pectoris.—Mr. D., aged 40, of robust appearance gives a history on the 24th of September, 1892, of having suffered for several months from agonizing pain in the præcordial region whenever he attempted to exercise much. He was disabled from business and much depressed, all functions normal. Dr. Kenne, his attendant, called Dr. Janeway as consultant; diagnosed angina pectoris. Another consultant diagnosed aneurism of the aorta, advising rest and the usual treatment. Mr. D. presented a decidedly gouty diathesis, urine loaded with uric acid, etc. He was put upon a non-meat diet, and a daily wet pack for one hour, and a continuous wet compress around left side of chest; gave glonoin and strychnia; after three months treatment, during which pain diminished in frequency and intensity, he was allowed to take a trip to Chicago. On his return he was placed upon a diet of chopped beef, preceded by hot water, for breakfast and dinner; oysters and hot milk for lunch. Compresses have been discontinued. Wet packs daily, sheet wrung out of water at 50° and followed by an affusion with water at 70°. He always sleeps soundly during the packs.

January 1.—Reports himself entirely free from pain although he has done more work than ever in his life, and passed through the excitement of seeing his factory burned down and reconstructing it.

The soothing effect of the wet pack and its effect in promoting tissue change are well exemplified in this case.

Incipient Phthisis.—Mr. S., from Kentucky, æt. 26, merchant, consulted me at Long Branch on July 29, 1892. Looks pale, emaciated, states that he has been losing flesh and coughing seven months, is constipated, has no appetite. Caught cold during a fire. No hereditary element. Temperature 101°, pulse 120. Physical signs, percussion dull over left supraclavicular space, respiratory murmur in left apex harsh, respiration prolonged. Ordered calomel, 6 grs., and absolute rest. July 31, feels better. Temp. 99°. Ordered to go to the Hydriatric Institute for treatment. Here he was weighed (nude), 106½ lbs., and received a hot air bath until warm, to enhance his reactive powers; this was followed by a rain bath of 95° reduced gradually to 80° for forty seconds

under 10 lbs. pressure, gradually increased; then spray douche at 15 lbs. pressure, gradually increased to 30 lbs. for four seconds, at 70°. This was repeated daily. He reported again at Long Branch ten days later looking better, appetite improved and with a gain of 1½ lb. He says a friend advised him to have his sputum examined, the latter was found to contain bacilli. He was urged by his friend to see Dr. E. G. Janeway, who after prolonged examination pronounced him phthisical, and advised him to leave the city at once and ordered creosote. As he was improving under hydrotherapy and disliked to leave, I regarded his departure with disfavor and advised continuance.

September 8. The hot air bath, followed by rain bath 80° to 70° and spray douche 70° to 40°, have been continued; until to-day patient weighs 114 lbs., a gain of 7½ lbs. in five weeks, appetite is excellent, cough still troublesome; is very hoarse, temp. 101°. Benzin inhalation and ¼ gr. codeia every four hours improved cough in two days, during which the hydratic treatment had been discontinued. It was now resumed.

September 12. Temp. is 90°, cough reduced to a minimum, appetite excellent. Weight 113½ lbs. Has been taking 6 drops creosote t. i. d., which sickens him and is discontinued. Ordered maltine with peptones t. i. d. in milk.

September 17. Hot air bath (170°) three minutes, rain bath 80° reduced to 60°, from which he reacted well. Cough troublesome. A spirometer test shows 190° before and 260° after treatment, which is 20° above the average for his height.

September 20. Dr. J. S. Ely reports tubercle bacilli in small numbers.

December 30. With occasional interruptions and loss of weight, patient has progressed well, and to-day weighs 121½ lbs., looks well, coughs but little, no temperature, and is anxious to go home. Dr. Freudenthal, who treats his throat, writes January 12, 1893, after detailing from his case records the physical signs he found on July 27 and again on November 11, 1892: "Patient looks and feels much better and has gained 10 lbs. in weight. Ulceration of the ligamentum glosso-epiglotticum and of the vocal cords, which have healed under lactic acid and menthol oil (20 per cent.)."

"Although I am not as optimistic as you are regarding water treatment, I must acknowledge, that the improvement in this case is remarkable!"

January 21, 1893. Patient is to-day almost free from cough, has good appetite and digestion, weighs 123½ lbs. (a gain of 16 lbs.), and five lbs. in excess of his average weight in health. Dr. Van Gresen reports that no tubercle bacilli could be found after examination of seven slides.

REMARKS.—There having been no change made in the patient's diet, mode of life and treatment, this case is a clear illustration of the utility of judicious hydrotherapy in improving nutrition in cases that usually thwart us. Clinical evidence of its value in phthisis is accumulating so rapidly that I need only refer here to a few of the cases I reported to the State Medical Society last February. One of these, æt. 33, of one and one-half year's duration, beginning with pulmonary hæmorrhage, gained 24 lbs. in three months, and coughed so little that no specimen of sputum could be furnished; another 36 years old, ill two and one-half years, beginning with hæmorrhages, gained 21 lbs. and lost all bacilli from sputum, and returned to work; another æt. 31, ill one year with repeated hæmorrhages, night sweats, etc., who was discharged after one year's treatment with 20 lbs. gain in weight, without bacilli, and slight physical signs, and able to go to work (Transactions New York State Medical Society, 1892, p. 382). Such stubborn facts should make us pause ere we condemn these sufferers to exile from home. A more methodical management, as indicated in the

above quoted, offers a reasonable prospect of success for home treatment. Witness the case of H. B. (p. 383), who after emigrating to Minnesota and improving there for six years, came to this city with a cavity and the most desperate general condition, and was sent home so much improved that he is able to attend to business.

Clinical proof abounds that phthisis offers, next to nervous diseases, the most fruitful field for hydrotherapy.

Advanced Bright's Disease with Albuminuric Retinitis. Remarkable Results from the Hot Blanket Pack.—Mr. J., æt. 60, a foreman at a lead trap factory, came under my care by request of his benevolent employer, on the 4th day of May, 1891. I had attended him several years ago for lead colic and severe headaches, from which he recovered. I now found pronounced swelling of feet and ankles, breathlessness on exertion, morning nausea, headache, double vision and vertigo; urine showed a large proportion of albumin, abundance of hyaline casts, sp. grav. 1020.

Patient received 10 grains of calomel, was put on bitartrate potas-lemonade, and was ordered one minim of 1 per cent. solution glonoin every three hours until flushed. He also received hot blanket packs of one hour, morning and evening. The quantity of urine having been reduced to 22 ozs., this treatment continued active until May 28. Dr. Edward S. Peck examined his vision to-day, and diagnosed homonymous diplopia, amblyopia and albuminuric retinitis. Dr. Peck examined urine on the 29th, and found it to "contain albumin in large reduction." There being some improvement in the symptoms, the same medicinal and dietetic treatment was continued. The hot blanket packs were given once a day, by means of a blanket thoroughly wrung out of hot water, laid upon another blanket; patient was snugly tucked into the hot blanket and afterwards covered by other blankets. He remained in this one hour or more, until he perspired very freely—successive parts of the body were now gradually uncovered and thoroughly dried. General friction closed the procedure.

June 30.—Examination of urine made from time to time revealed gradual improvement, in quantity and constituents. He went to the country on the first of July, 1891. On the 9th of September he called at my office. His urine presented but a trace of albumin, he was free from all unpleasant symptoms, was strong and had resumed his duties at the factory for the past week.

October 4, 1891.—I could find no trace of albumin nor casts in his urine. He worked without interruption during the entire winter, until August, 1892, when he was obliged to discontinue by a severe diarrhoea, for which I was not called. He went to Hackensack, N. J., and was there attacked on the 16th day of August by apoplexy and hemiplegia, from which he died, after remaining unconscious six days.

Dr. St. John, his attendant, states that prior to this illness he had examined the urine, finding no casts and but a small per cent. of albumin. There was no oedema. This case illustrates the value of the hot pack in restoring the failing function of the kidneys. It is to be regretted that the patient did not remain under observation. These points however, cannot be disputed; that he was utterly disabled by pronounced uræmia and albuminuric retinitis. He recovered from these so as to work steadily for a whole year. His work demanded precision and good sight, both of which he possessed during this period.

Dr. William McLaury, who attended other members of the family saw him during and after the illness.

Cases like this should give us confidence in the value of hydrotherapy in milder cases of Bright's disease.

In the Montefiore Home such cases are not infrequent. In the report for 1891, Drs. Ettinger and Rosenthal says:

"Two cases of chronic Bright's disease owe marked improvement to the systematic application of hydrotherapy." Both had been treated for several months elsewhere, without benefit. Both suffered from extensive dropsy of abdomen and legs. Eight quarts of fluid were removed from one of these on the day of admission and the other had been repeatedly tapped. The dropsy has progressively disappeared, until now it is entirely gone in both cases."

Subute Nephritis.—Intense Catarrhal Jaundice.—Mrs. S. consulted me on June 29, 1892, being pregnant eight months. Albumin and granular casts in urine indicated nephritis of pregnancy. Two days later she was attacked by convulsions, during which she was delivered of a child which has continued to thrive. She remained comatose twenty-four hours, the urine being reduced to six ounces. Calomel, hot blanket packs and nitroglycerin "unlocked" the kidneys. The urine remained albuminous and scant for several weeks. Her recovery has been slow but steady under a non-meat diet, digitalis, nitroglycerin, etc. Urine was still albuminous when I was compelled to leave her on the 5th of September. She was now kindly cared for by Dr. A. H. Smith, who sent her to me on the 26th of September with the following (here abbreviated) history. "For some time after you left Mrs. S. did very well. The urine was abundant and the amount of albumin very small. I allowed her meat once a day. Appetite improved and kidneys remained satisfactory until her menstrual period, when there was an abrupt fall in the amount of the secretion to 30 ounces or less with increase of albumin to 5 or 6 per cent. I then put her back on digitalis and added potas acetate. This failed to increase the urine and the hands and feet became a little swollen. I then ordered nitroglycerin and in twenty-four hours, the amount was doubled. The specific gravity kept about 1015 to 1020. Diet, mostly milk. About a week ago, when the quantity of urine was smaller, she developed an intense itching of the surface without any eruption. Increase of urine was not followed by improvement in this respect.

It appears to me to be a case well adapted for hydrotherapy and I am glad she is under your observation for this reason especially. The itching is very distressing.

Bicarbonate soda has little effect. Hyosciamin gave her sleep. I sincerely hope you will be able to do something for her relief, etc." Having returned to the city on the 27th of September, I found Mrs. S. in a most distressing condition from constant itching of the entire surface; her eyes and skin had a yellowish tinge, bowels constipated, stools clay colored; no appetite; urine 30 to 36 ounces daily by careful measurement and decidedly albuminous. All sorts of local applications failed except a warm bran bath, the success of which was temporary. She was now ordered a daily wet pack for three quarters of an hour, sheet wrung out of water at 70°, reduced daily two degrees, followed by rapid ablution with water at 60°, reduced daily one degree; also an enema of 1½ quarts of water every day at 80°, reduced daily five degrees until 60° was reached; Carlsbad salts twice a week; and a non-meat diet. She passed twelve ounces of urine during the first four hours after the first pack. It continued to increase daily until the quantity is reached far beyond the normal. This treatment was continued until November 1. The last albuminous urine (a trace) is reported for October 11, at which time a few granular casts were still present.

Dec. 27.—Since that time eight specimens have been examined, all of which are entirely free from abnormal elements. Patient has gradually improved, with the exception of three days of intense colic, which I attributed to gall stones. These were carefully searched for and found on November 26, since which time the pain ceased, the skin

cleared up entirely. For two weeks she had hot air baths, followed by the rain bath at 95°, reduced to 80° for twenty seconds, and the jet douche at 70° for two seconds, with massage. This tonic procedure improved her appetite. She is now taking two ounces olive oil twice a day in sarsaparilla syrup; and is allowed white meat three times a week, and beef once a week. In this case the action of the wet pack as a stimulant to cutaneous action, which relieves the kidneys of work was potent. Kussmaul, Friedrich Hoffman and others have pointed out the superiority of the cold pack over the hot in subacute cases of nephritis. Krull's injections have so frequently proven themselves the most efficient remedial agents in catarrhal jaundice, that the value of this hydropathic procedure need not here to be dwelt upon. Dr. Smith's prediction that this case required hydrotherapy proved correct.

Jan. 15.—Patient has been discharged several weeks with an allowance of meat every other day. She is perfectly well. Urine examined to-day is found normal.

Hystero—Epilepsy.—July 19, 1892.—A. F., æt. 15, was brought to the Hydropathic Institute by his father, who says on the 31st of March, 1892, on the day of his daughter's burial, the boy fainted. Ten days later he fainted in school, and again two days later. Dr. S. P. Cahen was called and investigated the case at school, coming to the conclusion that it was "a form of epilepsy." The boy was kept from school and put on bromide potassium. The attacks becoming more frequent, Dr. Geo. W. Jacoby was called in consultation; the same treatment was continued. He continued to have attacks every day lasting from five to ten minutes. At first he lay unconscious, without any movement whatever, then the attacks became violent, frequently requiring several men to hold him down and prevent him from doing himself bodily harm. Dr. Jacoby was again called in consultation and made an unfavorable prognosis. Several physicians who had been called during the attacks, gave him hypodermics of morphine. Patient has also received electrical treatment from Dr. Cahen. Status presens—Face covered with acne, eyes restless, hand tremulous, gait unsteady, appetite fair but capricious, gastric oppression after meals, bowels constipated. Patient appears to be brominized.

Treatment.—Resorcin 3 grs. in ½ pint hot water an hour before lunch and dinner. He was ordered to be at once well scrubbed with soap and water. This was followed by a wet pack, sheet wrung out of water at 70° reduced daily two degrees. This to be followed by a rain bath at 90°—25 lbs. pressure gradually reduced during 30 seconds 75°.

Aug. 20th. This treatment had been used daily, the temperature of the bath being reduced two degrees every day. He had a slight attack five days after treatment was begun, none since. He was ordered to Long Branch to take surf baths.

Sept. 29. Patient has called on me several times reporting steady improvement. He was discharged cured. Up to this writing Jan. 1, 1893, no further attacks have appeared. Besides these, there were a number of cases of chronic rheumatism, neurasthenia, bronchitis, asthma and sciatica sent to the institute, for treatment by Drs. Starr, Dana, Geo. Jacoby, Sachs, Lezynsky, Walton, Feschner, Pritchard, Willy Meyer, Allen, Schoeney, Lincoln, Offenbach, Sayre and others, the results of which will doubtless be reported by some of these gentlemen. If the few clinical histories here offered will induce practitioners to utilize water more frequently as one of their remedies, I will be content.

Discussion.

Dr. Mary Putnam Jacobi: One can hardly do better than to repeat what Dr. Baruch has said in almost the words

employed by him, that in water by means of the various forms of its application we have a type of almost every other possible therapeutic measure, and only one remark should be added to mitigate the fanaticisms of certain treatment does not go far enough to meet all the indications. I have followed with the greatest interest Dr. uneducated water enthusiasts, namely, that the water Baruch's various contributions to the subject of hydrotherapeutics, and have been exceedingly delighted to see that the subject has begun to be taken up seriously in New York City where, I think, until Dr. Baruch began to study and investigate it, had been much neglected. It is curious that German physicians who think water is good for serious and intractable diseases should regard it as dangerous in ordinary hygiene. That seems to be a notion prevalent among the German population of this city, and also in Germany. I would cite the remark of Uffeeman recommending with caution that children should have the face and neck washed every day, while the possibility of washing the child's whole body every day seems never to have occurred to him. In another treatise by a German author it is said to be exceedingly good to have a course of cold water treatment a few weeks, but to be continued permanently it is altogether too exciting to the nervous system. And this superstition that the cold bath is too exciting to be tolerated and that it is something which people can only gird themselves up to with great energy and strength of will is very frequently encountered among the laity and many physicians. I remember having rather an acrimonious controversy with a doctor because I had advised the cold water douche for a lady patient. She was a typical neurasthenic. He had once had the same trouble, he said, and had suffered such tortures from the cold douche that he should never be cruel enough to ask that a delicate girl be subjected to it. I think Dr. Baruch must have had great influence over the young lady whose case he has just related to induce her to continue the treatment after she had fainted under it on several occasions. My own observation has been that if patients feel at all tired after they have undergone one seance with the water treatment they consider that they have entirely gone to pieces, and will not discuss the matter further lest they be persuaded to continue it. It seems that where persons feel so badly after beginning the cold water treatment it is because the vaso-motor system of nerves have been exceeded out of proportion to the excitation which should be conveyed to the spinal nerve centres. It is an elementary truth to which Dr. Baruch has referred that the characteristic result of the application of cold water to the skin is a very great stimulus to the nerve centres and dilatation of the cutaneous vessels, but in some instances, instead of there being excitation of the centres in the cerebro-spinal system of nerves, the excitation is expended upon the vaso-motor system, producing contraction of the blood vessels and diminished blood supply as a tertiary rather than as a secondary effect, so that the subject remains cold or chilly and the surface pale. There is also apparently contraction of the blood vessels of the brain which may account for the intensely wretched feeling from which the person suffers. It is evidently entirely improper, as Dr. Baruch has pointed out, to begin the treatment in such cases by applying cold to the surface. One must begin with heat. I suppose when the blood vessels on the surface are mechanically dilated by heat that there is such a degree of stimulus of the cerebro-spinal nerves they are not exhausted by the subsequent application of cold.

It seems to me the value of hot water in the treatment of Bright's disease is due to lowering the blood tension by dilatation of the blood-vessels on the surface of the skin. I cannot see that it acts directly to make the kidneys better,

but that by lowering the blood tension it overcomes one of the elements of the disease.

I would ask Dr. Baruch his opinion of an assertion by Dr. Weber, of London, that persons who have commencing uric acid deposits should not be subjected to the use of cold water, Dr. Weber advising only hot water. Would Dr. Baruch regard this simply as a fancy?

Dr. Frederick Peterson:—Although I came in too late to hear the paper read, yet being acquainted with the views of the author, I am sure I should coincide with most of his statements. I am particularly in favor of hydrotherapy in nervous and mental diseases. I think there are many conditions of mental disorder in which hydrotherapy is of great value. In incipient melancholia we have no other agent quite as efficient as prolonged warm baths. In motor excitation of acute mania there is, I think, no agent quite as useful as the hot wet pack. I have found by experience that it is much better than the strait-jacket and injections of hyoseyama. In a conversation with Professor Winternitz (winter?), of Vienna, who has had much experience with hydrotherapy in chronic diseases, he told me that fully two-thirds of his cases are of nervous diseases; that he found this agent successful in many diseases considered incurable. Not that it cured them, but that it alleviated many of the symptoms. Hydrotherapy should be much more used. It is valuable in chorea, epilepsy, and many spinal disorders.

Dr. A. D. Rockwell:—It would be a good thing if some one would enumerate all the drugs which have come into vogue, had their day, and then were abandoned. It would show that much useless drugging has been going on, and the superiority of rational methods. As to therapeutic methods other than medication, we cannot but be struck by their permanency. Hot and cold water, exercise, etc., have been known since the beginning of medicine, and the more we know of them the better do we appreciate them. I quite agree with Dr. Peterson as to the great value of water in nervous conditions. I would like to refer to a special use of water, a mechanical use it is true, but yet one of great value, namely: intestinal irrigation. We all know the vast misery from chronic constipation, whatever it may arise from, and we know how much the person is improved by having the bowel flushed. It does seem unphysiological to throw such large quantities of water into the rectum; it does interfere with peristaltic action, and many who have commenced it have had to give it up. To prevent the occurrence of paralysis of the bowel I have found nothing better than electricity applied by the bipolar method.

Dr. Charles C. Ransom:—I can confirm what Dr. Baruch has already said by my experience at Richfield Springs, where I have occasion to use water in many cases during the summer. I can speak particularly of its value in nervous conditions. The few nervous cases which I have seen there have been mostly of neurasthenia in business men worn out by close attention to their affairs. In them I have used the cold douche with the most excellent effect. It relieves their insomnia, increases the nerve tone, and aids digestion.

Dr. Baruch:—My object in reading the paper was to give practical details and demonstrations, showing that water can be applied to the most delicate subjects. I have seen this demonstrated very often at the Montefiore Home, where a condition of admission is the incurability of the disease. In most desperate cases there, we find patients who never took a bath before gradually becoming accustomed to taking it at a temperature of 65° F. every day.

I would impress the impropriety of using the term cold water or warm water. We do not tell patients to take quinine; we give them the dose, and special directions should be given as to the temperature at which a bath

should be taken, the necessity for securing reaction, etc.

Referring to Dr. Jacobi's question, I may say that no person is better able to judge than she of the influence of water upon tissue metamorphosis, about which she wrote the best article in the English language as long as ten years ago.

I have endeavored to show that the judicious application of water is an agreeable remedial measure, free from shock or other unpleasantness, and produces striking results in some intractable diseases. In my propaganda for hydrotherapy I have in some quarters been charged with unwarranted enthusiasm. If a conscientious proving of all remedial agents in vogue and proposed during an active general practice of thirty years entitles a man to an opinion on therapeutics, I would reiterate with emphasis the conclusion given in Hare's System of Practical Therapeutics.

To sum up the aims, capabilities and results of hydrotherapy, it may be said we possess in this method a valuable auxiliary to medical treatment of many, *though not all*, acute and chronic maladies.

In many chronic diseases it has proved so successful after failure of medicinal remedies, that *no case should be yielded up as hopeless until hydrotherapy in some form has been tried*.

My observations at the Montefiore Home, which receives only incurable cases, demonstrate this fact.

Domestic treatment will suffice in most cases, but if this fails, a methodical treatment under an expert hydrotherapist may be of advantage to the patient.

The best consultants in Germany, Italy and France, men like Leyden, Charcot, Nothnagel and Erb, send their patients to these institutions, with their diagnosis and general suggestions, rather than with specific directions.

Finally, so much depends upon the reactive capacity of each individual, that only systematic observations can determine the most useful procedure in each case.

American Electro-Therapeutic Association.

Second Annual Meeting, held in New York, October 4, 5 and 6, 1892.

WILLIAM J. MORTON, M.D., PREST.

FIRST DAY OCTOBER 4—EVENING SESSION.

(Continued from page 218.)

THE VALUE OF VOLTAIC ALTERNATIVES IN OPTIC NERVE ATROPHY.

By Charles Eugene Riggs, A.M., M.D., Professor of Nervous and Mental Diseases in the University of Minnesota, St. Paul, Minn., Member of the Neurological Association, Member of the American Electro-Therapeutical Association.

My attention was first called to the value of voltaic alternatives in atrophy of the optic nerve by Dr. Webster Fox, of Philadelphia, who said that he had obtained from their use some results so surprising that he hesitated to publish them because of the incredulity with which he felt they would be received by the profession.

This strong recommendation from so eminent a man resolved me to make trial of them in my own practice should occasion arise, but for some time I was deterred from the habitual use of them by the fact that in the ordinary instrument the only way of alternating the currents is by the hand, which is not only tiresome in the extreme, but also undesirable as the frequent use of the commutator in this manner renders the battery unreliable for careful diagnostic work. Also in using the hand the precision of the make and break will necessarily vary a little; consequently there will not be the same smoothness of current as though the action were automatic. To remedy this defect I requested Dr. H. E. Waite to construct for me an auto-

matic commutator, which has proved satisfactory in every way.

I first tried the voltaic alternatives upon a patient sent to me by Dr. Graham, of Minneapolis. He reported that when first examined he found the media clear, hyperæmia of the optic disc, with outlines slightly blurred, veins slightly enlarged and tortuous, arteries reduced. The treatment before the use of the voltaic alternatives had been iron, quinine and strychnia, with no improvement resulting. After the use of voltaic alternatives had begun she improved very slowly, by almost imperceptible degrees. She was under this treatment for two or three months, and examinations made in the meantime by Dr. Graham showed unquestioned improvement in the eye condition. At the end of this period she was obliged to leave the city, but wrote me at the end of six months that the improvement had been continuous and was still going on.

For the next case that I treated I was indebted to the courtesy of Dr. E. H. Wood, of St. Paul. I subjoin the report of the case as taken from Dr. Wood's notes.

"J. W., aged 52, farmer. July 26, 1891. Says six months ago eyesight began to fail and 'everything looked milky.' No pain in head or eyes.

Examination:—Vision in right and left eyes, counts fingers at ten feet; not improved by glasses. Cornea clear tension normal. Pupil acts to light and accommodation. Ophthalmoscope shows both optic discs very pale, medium-sized physiological cup, blood vessels medium-sized, vitreous clear and rest of fundi normal. No history of injury or syphilis. Says memory is getting very poor and that he often forgets what he came to town for. Has numbness of legs and arms, spastic contraction of fingers, no ankle-clonus, but there is increased knee-jerk in right and diminished in left leg. Diagnosis, atrophy of optic nerve. Treatment: Elix zinc ferri et strychnia, hypodermic of strychnia in temples and electricity, also large doses of potassium iodide.

Aug. 14, R. V.=6-36. L. V.=6-60.

Aug. 27, R. V.=6-24 + 1.5 D.=6-9. L. V.=6-36, not improved by glasses. Patient returned home.

My examination of the man demonstrated the existence of nervous trouble, indicated by the symptoms Dr. Wood had observed. The result of the use of voltaic alternatives in this case was most astonishing.

After the first week's treatment the patient declared himself decidedly improved, and the improvement was rapid and continuous while he remained under my care. That the improvement was permanent is witnessed by the subjoined note of Dr. Wood, who made a special re-examination of the case for the purpose of this paper a few weeks ago.

"Sept. 4, 1892.—Examined him and found that he had been working most of the time; said memory continued good, numbness and spastic contraction did not return and that his eye-sight remained about the same.

"R. V. without glasses 6-24, with plus 1.5 D. = 6-9.

"L. V. without glasses 6-36, with plus 1.5 D. = 6-9.

"Field of vision has never been carefully taken."

In a third case which was sent me by Dr. Chamberlain, of St. Paul, the treatment produced no beneficial result. This patient became discouraged after six weeks or two months treatment, and falling into the hands of "faith-healers" discontinued treatment, so that I do not consider in view of the fact that the trouble was of long standing, that the treatment was given a fair trial in this instance. I subjoin notes of Dr. Chamberlain upon the case.

"X. Y., aged 46, general office in R. R. land dept., came to me in April, 1890, complaining of a strained feeling about his eyes.

"R. V. 20-100. "L. V. 20-200.

"Myopic astigmatism of about two dioptries in each eye; this corrected gave him R. V. = 20-30, but did not improve the left save, as he said, to brighten it up a little. His work being largely reading of correspondents and examining fine lines on the maps and fine figures in books, I prescribed rest in addition to change in his glasses, the latter he obtained but the former he did not take.

"In giving his history, he said that six years previous while his eyes were undergoing an examination, he found that he had very little vision in his left eye, something he had not known before. The ophthalmoscope showed the left disc to be very pale and vessels reduced in size. The right disc, however, seemed nearly normal. He returned to his work and had no trouble with his vision until about June, 1890, when he returned to me saying that his vision was getting bad in the other eye. He had been working very hard and was reduced physically, so I advised immediate rest. The retina and optic disc of the right eye were in an irritable and somewhat congested condition. After a months rest, though physically improved, he could see absolutely no improvement in his vision, which at this time equaled part of 20-40 with the right eye, the optic disc being paler than normal, and the vascular condition being somewhat reduced. I put him upon potassium iodide and also strychnine, both hypodermically and by the mouth. I referred him to Dr. Riggs for electricity.

"Sharpness of vision slowly decreased. September 20 it was only a guess at 20-40; September 30 it was only 20-50, and by November was reduced to 20-60. About this time he passed out of my sight."

I am at present trying voltaic alternatives in a number of cases representing various forms of brain disease, but the experiments have not yet been sufficiently prolonged to justify me in recording any opinion as to results.

The stimulating affect of this current and its influence on nutrition is evident if one considers it in its physiological aspect. That the reversal of the polarity of the electrodes in its use is much more energetic than the simple closures, is very evident if one understands the nature of the phenomena.

De Watteville (*Medical Electricity*, p. 108) says, "When the electrode on the nerve is alternately changed from anode to cathode, and from cathode to anode, a series of closure excitations are given, which fall alternately in the polar (when the electrode becomes cathodic) and the peripolar (when the electrode becomes anodic) region respectively. Now in either case the excited region had just before been under anodic influence, and physiology teaches us that as we shall presently demonstrate on the human nerve, the instant the polarizing current ceases to flow the anodic region passes into a state of increased excitability. This augmentation is the more marked the longer the anodic influence has lasted. We see, therefore, how it is that voltaic alternatives act more powerfully than simple closures of the circuit, and that their action is intensified by previous current duration. We understand also why rapid reversals are the more effectual; for the positive modification after an electrotonus diminishes rapidly after the circuit has been broken; the longer the interval which elapses between the polar change of the electrode the less the hyper-excitability of the nerve will be, until it has returned to its normal state."

Althaus (*Medical Electricity*, p. 225) emphasizes also the fact of the increase of excitability when the voltaic alternatives are frequently repeated.

It is to be hoped that such workers in this line as Dr. Webster Fox and his coadjutors will soon lay before the profession the results of their large experience. In this article I have only designed to be suggestive and to stimulate my confrères to investigation, that the true value of

this therapeutic measure may be thoroughly ascertained. If in the use of voltaic alternatives has indeed been found the remedy for even a part of the cases of atrophy of the optic nerve, the fact cannot be too soon established or too widely known.

LACERATIONS OF THE CERVIC UTERI AND THEIR TREATMENT.

By F. von Raitz, M.D., of New York.

Before entering upon the delivery of this subject, I feel it my duty to protest against any assumption which could tend to place me in one line with those who call themselves "Electricians," for I am a physician, and as such I use any agent which in my opinion is the best for a given pathological condition, be it water, fire, air, drug, electricity or the knife. And this paper here, which I have based upon 73 cases, which I treated, with various agents, is a clinical picture of nude facts, therefore, I shall first report of which characters they were. According to the depth of the rent, I arranged them in four classes as follows:

Class No. 1, slight lacerations.—19 left lateral; 4 right lateral; 6 bilateral. 29 cases. Subjective symptoms: none at all or various degrees of leucorrhœa, nervousity.

Class No. 2, lacerations about one-half inch deep.—4 left lateral; 2 right lateral; 14 bilateral; 1 posterior; 1 stellate. 22 cases. Subjective symptoms: uneasiness in the pelvis, pain in the back, lancinating pain, bearing down, menstrual, nervous and digestive disorders. Loss of strength and flesh. Leucorrhœa or not. Occasional dyspareunia.

Class No. 3, lacerations about three-fourths inch deep.—14 bilateral; 2 stellate. 16 cases. Subjective symptoms: similar to class No. 2, but the cases with mild symptoms are less in proportion. Occasional dyspareunia in same.

Class No. 4, lacerations near or up to the internal os.—6 bilateral. Subjective symptoms; as class No. 3, but still more severe in some cases. In one case, however, there were no subjective symptoms.

This classification shows in what relation the depth of the rent stands to the subjective symptoms; that is, slight lacerations may cause subjective symptoms, similar to those of deep lacerations.

Of Class No. 1, 29 cases, 14 only called medical assistance for leucorrhœa. Eight of these cases presented erosions of various degrees and also endocervicitis. The rest of these 14 cases, six, had endocervicitis but no erosions. The endocervical discharge was various in character and degree but mostly purulent. The cervixes were increased in size by congestion or some hyperplasia. Some cases had subinvolution of the corpus to a marked degree with tenderness on pressure.

Of these 14 cases, 4 I treated by electricity, tincture of iodine, glycerite-tamponade and hot douches, medicated with astringents or solvents, as the case required; 10 cases I treated as before but instead of electricity I used carbolic acid.

The rest of this class, 15 cases had no subjective symptoms,—the lacerations were smooth, the cervix, though slightly enlarged had a sound appearance. In some there was evidence that the rent was far deeper originally and was sewed by nature. These cases were treated with hot douches alone.

The manner in which I applied electricity, glycerites, carbolic acid, douches *a. s. f.* I shall describe later.

Of Class No. 2, the stellate, posterior and 3 of the bilateral lacerations induced very marked subjective symptoms: intermittent lancinating pains, bearing down symptoms, pain in the back, menorrhagia, traumatic metrorrhagia—after coitus—headaches, digestive disturbances, nervousity, loss of strength and ambition; leucorrhœa.

The objective symptoms in these 3 cases were: cervixes considerably enlarged by the congestion resp. hyperplasia;

the ora and lacerations angry looking, discharging glairy or purulent mucous; granular, postular or vegetative erosions.

Bimanual and instrumental examination revealed: more or less prolapsus uteri and laxation of pelvic muscles and uterine ligaments; uterus enlarged and variously displaced, mostly in retro-positions. (One case of the bilateral type so much in retro-version, as to place the os near the symphysis pubes and the fundus in the posterior cul-de-sac). More or less tenderness in the hypogastrium. In one case difficult and painful defecation.

The posterior and one bilateral case, I treated by the knife, after a preparatory course of treatment; the bilateral healed up by first intention, the posterior partly by granulation. The other three of the five severe cases I treated by electricity, massage and manipulation, tampons and douches. The rest of class No. 2, 17 cases, presented subjective, objective and palpable symptoms, similar to the severe cases, but less pronounced. In some there was but slight and temporary uneasiness and the cervixes, although congested, did not look bad at all, as the rent was smooth, and as there was no endocervicitis. One of these milder cases, a bilateral one, I treated with the knife, three bilateral and one left lateral with electricity, the rest, 12 cases, I treated with tampons *a. s. f.*

Class No. 3, 16 cases, presented symptoms similar to class No. 2, but here 4 cases only were really mild, (one stellate belonging to the mild ones). Six cases, bilateral, were quite severe, being complicated with periuterine inflammations. In some cases erosion of the lips was very marked, but the surfaces of the lacerations were smooth, though angry looking near the cervical canals which discharged scantily or moderately glairy mucus, speaking of endocervicitis catarrhalis. There were no erosions, but there was, very likely, endometritis or metritis.—I say "very likely" for it is not safe to diagnosticate those lesions in a subinvolved uterus with certainty. The corpora were enlarged, admitting the sound from 4 to 5 inches, and variously displaced: two in retro-versio-flexio, one retroversion, one retroflexion, one sinistro-lateral, one antilexion. There were rectal and bladder symptoms.

The rest of class No. 3, six cases, were not severe, though the subjective symptoms, compelled them to seek the bed at times. The uteri were in some slightly in version, mostly posterior, in others the position was normal. But all in a state of subinvolution and more or less descended.

Two of the severe cases I treated by the knife, one after preparatory treatment by electricity, one without it. The result in the first case was primary union and great satisfaction; the second case healed also in the end, but it gave some trouble and took more time. Six cases, including the stellate, I treated with electricity, and eight cases by tampons *a. s. f.*

Class No. 4.—Six bilateral. Concerning the symptoms there was no difference, except that the eversion of the lips was more marked. In one case the lips were very much everted, and yet the lady did not suffer at all and called at my office, only to be examined, as she thought to be pregnant. She was 36 years of age, had two children and two abortions.

When I made the digital examination I did not know what I felt. I hunted for the cervix but found none, instead, however, two tumor like bodies of elastic quality. And not until I placed her in "Sims" position, I knew I was dealing with a lacerated cervix, the lips of which were enormously congested and hyperplastic. The fundus was greatly enlarged and placed upon the cervix, hanging down in the posterior pouch. She was then, according to her statement, about six weeks in pregnancy. At about 4½ months she miscarried.

Two patients had peri-uterine inflammations.

Of this class, one I treated by the knife after preparatory treatment with electricity, two by electricity, three by tamponade with astringents and solvents, *a. s. f.*, all, of course with hot douches also.

When I speak of treatment with the knife in connection with lacerated cervix, I mean the performance of trachelorrhaphy.

I treated six cases by trachelorrhaphy; 15 cases by electricity; 37 cases by caustic and tampons; 15 cases by douches. Seventy-three cases.

The etiology of laceration of the cervix is always pregnancy. Now and then there may be a case due to rapid dilatation for pathological reasons. A diseased cervix will tear more readily than a sound one. Miscarriage will cause laceration. Superficial lacerations will grow deeper with each subsequent parturition.

The pathology is nothing but a solution of continuity of those structures which are torn, and has to be considered like a fracture of bone as far as the existing rent goes. As I have shown, the depth of the tear has no direct relation to the symptoms in general, therefore, other causes must necessarily, induce the complications on which the symptoms depend, for we have deep lacerations which are associated with slight subjective symptoms, and we have slight lacerations which are associated with much suffering. But subinvolution, congestion, and hyperplasia are directly depending on the tear and must therefore, be considered with the pathology of the laceration.

The manner in which subinvolution is caused is simple, in so far as clinical observation goes, for we know that involution of the uterus is retarded or interfered with in proportion to the length of the tear. Some sympathetic filaments around the os externum, which are more important than we ever shall know, are torn with the other structures, consequently the communication of the cervix with the corpus is interfered with in proportion to the extent of the damage and the vaso-motor contractors are not called to work. Now, the venous blood vessels, remaining engorged with blood, keep the capillaries and capillculi in a state of distension, which gives rise to what we term congestion, which again prevents perfect oxygenation of the tissues. As this condition persists, the muscular fibres lose their tonicity and the top-heavy fundus will bend them in just that direction which will be given by the influencing bladder or rectum, consequently we will get those various flexions. Or, if the tonicity of the muscle fibres is still strong enough to oppose bending, absolutely or partly, the top-heavy fundus will gravitate downward just the same, and also in the same direction given by the bladder or rectum, and we get the various versions or versio-flexions. And as the habit of the patient will be concerning defecation and urinating, we will get either retro or anti-displacements. So the bladder and rectum are influencing the direction of displacements and after displacement is finished, the fundus will influence them also, and we get bladder and rectal symptoms.

Now the interference in circulation is still greater, the uterus grows more and more heavy, the ligaments are taxed in proportion, lose their tone, and we get descent, and even prolapsus. Finally there comes a time when all pelvic structures will suffer more or less congestion. As congestion persists, and as oxygenation becomes more and more imperfect, changes in nutrition must follow and consequently, we get hyperplasia.

Now as there is congestion and hyperplasia, that is altered nutrition and tissues, the nerves suffer also, and we get reflex phenomena which make some women objects of pity. There are headaches, digestive disturbances, palpitation of the heart, restlessness and sleeplessness, and I do not know

what else, in addition to the pelvic aches and pains.

As there is altered nutrition, there of course must be altered function, and we get menstrual disturbances due to perverted innervation, due to mechanical obstruction with some degrees of flexion and version. The altered condition of the mucous membrane, naturally, is a main factor, for a long-standing congestion will cause fungosities of various character, endocervicitis, endometritis catarrhalis, even suppurans, which again may grow into metritis and peri-uterine inflammations. Fungosities and endometritis may cause metrorrhagia. Of course, the just named inflammations, even if associated with laceration, may have another cause.

Erosions, of whatever character, are due to endocervicitis, and we have them without laceration just as well; and, as a matter of fact, these lesions are complicating the superficial lacerations more often, for the reason that the deeper the rent, the more cervical mucous membrane, the factor of the discharge, is destroyed. The more purulent and acrid the discharge the easier erosions can form. Coitus will then aggravate them. It is perhaps wrong to consider these lesions under this head, but as congestion causes endocervicitis, they may be mentioned here. The same may be said of endometritis, metritis and peri-uterine inflammations.

Symptomatology and diagnosis need no further consideration.

The prognosis of even the worst cases is good in the hands of an intelligent and energetic surgeon. It depends, if trachelorrhaphy is to be performed, not only on the operation, but more so on the skilful preparatory treatment and on the after-treatment.

The treatment must necessarily vary according to individual cases, but yet, if we rest upon pathology, this knowledge will give us valuable rules, according to which we can treat. And, as we have seen, the laceration itself does not often require treatment, but the secondary manifestations. Thus, if we have to treat a superficially lacerated cervix, without endocervicitis and erosions, but with hyperplasia and a subinvolved uterus, our aim must be to reduce the size of the cervix and corpus. The laceration will then take care of itself.

Now, considering the means of reduction, we find that douches and electricity take the foremost place, but astringent tonic applications, as various acids, fluid extract of hamamelis, Kennedy's white fluid extract of pinus canadensis—which contains alum and zinc-sulphate—tincture of iodine and of chloride of iron, are useful adjuvants.

There is a great difference in the efficiency of hot douches. To expect the best effect, hot douches have to be taken in the recumbent position with the pelvis considerably elevated; but the posture must be so as to allow the patient perfect comfort. This is experienced when the head is raised to a physiological level to the heart. To increase the effect of the hot water, alum with borax or carbolic acid, sulphate of zinc or any other astringent, may be added in a proper proportion; they act at the same time as antiseptics. The water should be as hot as can be borne (some will tolerate 120° F.), and the quantity should be a gallon. Douches properly taken will allay nervousness, produce sleep, and inspire the patient so that she will gladly take three per day, and if they are persevered in, they alone will cure many cases. The importance of elevating the pelvis has been demonstrated anatomically and pathologically before this, but it is surprising that there are still gynecologists who take it lightly.

In case the congestion and subinvolution demand more vigorous treatment, electricity is the agent. Charge the cervical cup with the constant current, and place over the hypogastrium, or umbilical region, a suitable electrode with the negative pole.

If the cervix is properly protected by absorbent cotton, and if the external electrode is large, a current up to 100 ma., gradually attained, is borne for about five minutes, without much complaint. After this, and without changing the electrodes, a high tension faradic current of good but agreeable strength is given for about five minutes. Then the cervix will be dried and treated with an astringent by the brush or on a wool tampon, which latter remains *in situ* for twenty-four hours, during which, of course, no douches are given.

Keeping the pathology in mind, it must be clear why in congestion (subinvolution is the same), the positive pole must act, and why the constant and faradic currents are useful.

Those who have applied the negative current under these conditions have been disappointed, though they relied on some authors who speak of hyperplasia and of hypertrophy cervicis or uteri as if they were of one and the same character, while they ought to know that hypertrophy is but seldom a pathological condition, but a consequence of over-physiological function, as in the heart or in a bone, or any muscle. Hypertrophied tissue shows a normal histology.

Hyperplasia is quite a different condition, and histological examination always shows the tissues in pathological association. It is due to inflammation of any character, to perverted nutrition and to congestion. And therefore a cervix and uterus can never hypertrophy, but they can be in hyperplasia or congestion.

We have cervixes which are hard or soft. A congested cervix may be as hard and as large as a hyperplastic one; we have also cervixes which present both conditions in one patient. Often it is difficult to differentiate between these conditions, but if we remember that a congested cervix has a deeper hue and a hyperplastic cervix a paler hue, we will without difficulty know whether we have to deal with one or the other condition or with both.

In those cases which present both conditions, the positive pole must be applied to the cervix first, and when the congestion is dispersed, then the negative pole takes its place.

A hyperplastic cervix calls for the negative pole and for solvents, such as glycerine, with lysol, or similar acting agents. Douches, of course, when the tampon is removed.

After there is some softening, the positive pole and astringents are brought into play; and when the positive pole and the astringents or alterans have acted sufficiently, then the negative and solvents; and so on, changing till reduction is accomplished.

The frequency of sittings depends on the strength and idiosyncrasy of the patient—as a rule twice per week, but for some three times per week. Some patients again, with decided nervous symptoms, will not tolerate more than once per week.

The strength of the current depends also on the idiosyncrasy of patients, but weak currents of long duration are far more successful than strong currents of short duration, and it is of importance to avoid cauterizing. As a rule, about 40 ma. for from ten to fifteen minutes are all that is necessary, and are borne with ease if the cervix is well protected with absorbent cotton.

Erosions have to be treated by caustics of which the positive constant current, also mildly applied, is best; but as it is depending on endocervicitis this lesion has to be treated at the same time.

Endocervicitis is generally associated with hyperplasia cervicis, and seems to be the cause of this condition as well as of erosions. To combat this complication, nothing is more useful than the galvanic negative pole attached to a nude uterine copper electrode. From four to six sittings, each of about ten minutes with a current of from 15 to 20

ma., followed by glycerite or pinus-tampons, will effect a cure and at the same time help the hyperplasia. If associated with a congested cervix the positive pole must be used after two or three negative applications. But then the positive must not exceed 15 ma. for eight minutes. The treatment for *cervicitis* is as for hyperplasia.

Endometritis and *metritis* is to be treated as the *endocervicitis*. Curetting is inferior here and more objected to by patients.

Periuterine inflammations complicating laceration of the cervix have to be treated as if they were not complicating it.

Menstrual disturbances complicating laceration depend on either *endometritis*, lesions in the adnexa, *subinvolution* or *malposition*; and perhaps also on *perverted innervation*. As soon as these causes cease, the menstrual disturbances will also cease.

Malpositions, or displacements as others term them, of all kinds of versions, flexions and prolapse, complicating laceration, are due to *subinvolution*, and therefore it is worse than useless to correct the malposition before a certain degree of *subinvolution* has been overcome. Pessaries are injurious; operations for replacement are rarely successful, but the course of treatment mentioned before always accomplishes enough reduction to allow the prolapsus, version or flexion, if it is free from adhesion, to approach its physiological locus, especially when massage and manipulation are applied; because the engorged viscera are depleted and the muscular, serous and mucous structures regain their tonicity. Massage and manipulation combined with hot douches, will replace in all cases, the uterus, even if there are adhesions.

Rectal and bladder symptoms are due to malpositions of the uterus, and to pelvic inflammations, and will disappear with their causes.

Sterility is due to *endocervicitis* and to *endometritis* in many cases, in others an advanced degree of congestion or hyperplasia is the cause.

Abortion is due to sharp-angled flexion, congestion and hyperplasia.

Miscarriage, however, is due to the rent itself, when it occurs in a patient with deep laceration; the internal os is deprived of its support and gives away to the increasing pressure.

The various neurotic phenomena, which are a great source of anxiety in some patients, are not depending on any degree of laceration, for some patients with moderate lesions will greatly complain about these phenomena, while others with severe lesion won't notice them at all. But as these nervous symptoms improve with the improvement of the *subinvolution*, that is, hyperplasia, or congestion of the uterus, it is reasonable to attribute them to *perverted nutrition* in consequence of which the cervix and corpus not only grow sensitive, but also transfer their troubles reflexly to distant organs.

Moreover, it seems to me that hyperplasia causes nervous symptoms more pronounced than congestion; and this explains why some observers speak of *anemia cervicis* and pressure by the hardened tissue on the filaments of the sympathetic as causes of these troubles.

Occasionally there will be in some patients, *dysparennia*, which depends on the morbid sensitiveness of the cervix and also on the erosions.

Thus far I have not mentioned anything concerning *trachelorrhaphy*, as I intended to consider this operation after all other means have been ventilated, but now comes up the question,—is *trachelorrhaphy* ever necessary? Before answering this question for any given case, we have to consider the character of this lesion, the degrees of the complications, the severity of the subjective symptoms, the age of

the patient with reference to her procreative power, and lastly the wish of the patient.

Suppose a patient calls a gynecologist and complains about severe subjective symptoms which point toward her sexual apparatus. He, examining her, finds a bad laceration almost up to the internal os with everted and enormously enlarged lips, which are hard and painful to the touch; the fundus, flexed upon the cervix, hanging down in the posterior pouch, being also painful to the touch. He learns there is constipation and painful defecation, and that she is growing from bad to worse and disgusted with her life. He also learns that she was treated already by one or more physicians but without relief. He advises *trachelorrhaphy* and enters upon a real good preparatory treatment, but without using electricity. The patient improves now in every way and this misleads her to refuse the operation. But after a time she feels her troubles returning and hears that electricity was used on some women with similar complaints, quite successfully. Being afraid to undergo the operation for *trachelorrhaphy*, she is now treated with electricity, receiving of course, hot douches per vagina and rectum, and also, later, massage. She improves now very much quicker, for the congestion and hyperplasia yield to the currents and so allow the uterus and pelvic structures in general to regain their normal tonicity. Finally the uterus returning to its physiological locus, removes the rectal symptoms, leaving the patient comfortable, and after awhile cured.

In case such a patient does not live in sexual relation she may nevermore experience any trouble, but if she is to have sexual intercourse the *membrum verile*, especially if it be long, will find its way between the lips and will irritate the laceration and give rise to similar troubles she was suffering before; or, in case she goes pregnant, she will suffer a miscarriage at about the 4th month. Therefore such a patient ought to have her cervix sewed up, and will generally consent to the operation if she will be made to understand her condition.

Hot water, electricity and massage, combined with constitutional and hygienic treatment, where it is necessary, will practically cure most cases of laceration, but the deep lacerations which cause eversion of the lips, occurring in women of sexual activity, must be sewed up. But even those cases which require the operation should be treated with electricity during the time of preparation as it insures far better results.

No. 101 West 132d Street.

Discussion.

Dr. Goelet said that while electricity might relieve or cure many of the results of lacerated cervix, Emmet's operation of *trachelorrhaphy* was the only cure for this condition itself.

Dr. Gunning said that his curiosity had been aroused by the general plan advocated, but he was rather at a loss to understand its special application to the conditions attacked; he did not know how much to attribute to the electricity, and how much to the other treatment employed at the same time.

Dr. von Raitz, in closing, said he performed *trachelorrhaphy* on those cases which needed the operation, but the treatment advocated in the paper was directed especially against the complications resulting from the laceration, as it was from these, chiefly, that the patient suffered. When he had treated these cases without electricity, much more time had been consumed in securing the results, and they had not been so good. He was firmly convinced as to the utility of this preparatory treatment.

(To be continued.)

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SATURDAY, MARCH 4, 1893.

THE INDICATIONS FOR LITHOTOMY.

After strivings as long and as devious as the history of civilization, the problem of removing the stone from the urinary bladder may fairly be declared solved. That minor improvements in the crushing procedure or advances in the prevention of calculus disease are yet possible is not to be denied, but there can be no exaggeration in the assertion that no equally painful, disabling, and eventually destructive malady has been more perfectly placed within curative power; no more important surgical measure reduced nearer to proximate perfection.

To master, not by methods essentially preventive, a disease of like prevalence, passion and mortality, so completely, so quickly, by means most agreeable to the feelings of the patient, and yet with a mortality of probably from one to five per cent., is a surgical triumph unsurpassed. The achievement is also remarkable, if not unique, in the lines upon which it has been wrought. Most other decisive victories of modern surgery rest confessedly in a large measure, upon aseptic wound treatment and anæsthesia. The conquest of vesicle calculus is a feat of engineering and technical skill resting almost solely upon mechanical ingenuity and the tactus eruditus, elements which in recent surgery of other lines have been brushed aside by clumsier, if better qualities. In the solution, asepsis, and especially anæsthesia have doubtless played a role, yet, as accessories rather than principals.

Logically, the stonecutter's occupation, like OTHELLO's, is gone; but the genius of vesicle surgery mellow with age, antedating authentic history, and mindful of the indiscretions of his youth, modest and patient, clamors not for the exclusiveness of the abdominal folk, but waits without scolding, till others learn the better way. Hence, although litholapaxy, in both sexes and all ages, in the hands of

experts has reduced the mortality to a point with which no cutting operation may hope to compete with prompter recovery, and by methods more acceptable to the patient, yet lithotomy is still practiced more or less on every hand.

What then, are the indications for lithotomy to-day? In a literal sense their existence is questionable. There occur frequently, possibly always will remain, cases of vesical disease in which stone exists and for which a cutting operation should be chosen. The knife, however, is indicated not on account of the stone *per se*, but chosen rather for the other conditions. The stone is frequently but an epiphenomenon, and the factors, which in judicious counsels decide against the lithotrite, are practically always other than the calculus. Why longer apply to an operation the name of an indication for which it is never more to be judiciously done? Plainly, stone is best treated by litholapaxy. Many conditions, some of them complicated by or consecutive to vesicle calculus, are best treated by incision of of the bladder. This latter operation is cystotomy, and only the soothing bonds of tradition hold us to the name of an obsolete, if not lost art. It may be argued that lithotomy is a name too illustrious and well known to be changed, reasoning that fails when as in this case, a name is a silent teacher of error. It beguiles many into the belief that the knife is still a competitor with the lithotrite in the treatment of stone, *per se*, an objection sufficient to demand the burial of the dead; yet worse, it constantly complicates and obscures the consideration of vesicle operations by bringing the prejudices, the traditions and the dead statistics of operations undertaken chiefly or wholly for the removal of stone, to cystotomy, now applied chiefly to a different class of affections.

It is not long since such factors as great hardness, size above an inch in diameter, the impubic urethra and inexperience in the operator were prominent among indications for lithotomy. To-day they are deservedly allowed but little weight as primary indications. Probably the stone rarely, if ever, exists of a density capable of resisting a combination of the best modern lithotrites and the highest operative skill. Size alone is found of less importance, while increasing popular intelligence and wide diffusion of professional skill renders the future occurrence of immense calculi unnecessary, even scarcely possible, while the work of KEGAN and others have shown that childhood as an indication for lithotomy and a bar to crushing is very largely a figment of an imagination imbued with satisfaction with the results of a favorite but inferior method. The argument of inexperience in the operator falls with strange inconsistency upon ears accustomed to the special solicitude shown the female abdomen, at least in the lit-

erature. Is it more sweet to die of a wound of the bladder than the belly? Future historians might, with some fairness, conclude that during the past decade the chiefest ignominy had been death from incompetent operation upon the abdomen, since so little comparatively is said of preventable deaths from other equally important and often more difficult operations.

But for the purpose of solving this problem it is not necessary to plead the specialist doctrine: a gospel at once full of truth and inconsistency. Indeed it goes without saying that special skill and experience are always an advantage in whatever line, but this is not always best and most consistently secured by an artificial specialism. It is idle and disingenuous, if not demoralizing, to discuss the ethics of choosing an inferior method because, forsooth, of inexperience with a safer, in the midst of a redundancy of competence. But such a discussion is rendered wholly gratuitous by the simple fact that lithotrity has always in all hands been, on the average, less mortal than lithotomy in like hands. In practice these old indications for lithotomy must receive some considerations, but they must be dislodged from a place among prominent or decisive indications for the knife, and cannot longer go unchallenged as formal teachings to soothe the conscience of those inclined to cut for stone because it pleases their convenience, whim, or indolence to choose this method.

Quite otherwise is it with those cases of diseased urinary tracts containing stone, such as vesical tumor, very severe chronic cystitis and prostatic hypertrophy in which operation is desirable, or which presents great obstacles and even positive barriers to litholapaxy, encysted stone, uncrushable foreign bodies, and deep urethral stricture. These conditions being well established are operated for and the stone incidentally removed. It would seem the height of inconsistency to term these indications for lithotomy. There exists stone and other disease, on account of the latter the urinary reservoir requires to be invaded and relieved by operation, during which the calculus is easily disposed of.

Having recognized this principle, the question of which method of lithotomy shall be chosen is more easily solved. Discussions and comparisons of the various perineal incisions and the supra pubic as modes of lithotomy of necessity leads to battles of the windmills. Not only are they comparisons of unlike, but of largely imaginary quantities. We shall probably never know practically and on a large scale, whether lateral or supra pubic lithotomy is the better operation for stone, certainly there is little to prove that the revival of the *sectio alta* for calculus was more than a fashion; whereas, there is quite as much certainty that supra pubic cystotomy for the

purposes for which we at present invade the bladder is much more efficient in most cases than any form of perineal incision, while the incision of lateral lithotomy has little, if any place in the surgery of to-day. Its applicability is certainly not wider than that of the knife for stone, *per se*, which has already it is believed been reduced to *nil*. This would undoubtedly relegate most of these cases complicated by or consecutive to stone to the supra pubic route, this, however, must not lead to the deduction that the *sectio alta* is *per se*, the best means of opening the bladder. Indeed regarded as an operation pure and simple, there can be no question that entrance by the median perineal route, even when the incision involves most of the prostatic fibres, is an operation of less severity, more easily executed, more rapidly recovered from, and less troublesome to patient and attendants in its immediate after treatment, and it manifestly should be chosen when it is clearly adequate to the work to be done. When not chosen it is simply because in most of these cases it is inadequate to the best performance of the object in view.

With the more accurate determination of the exact work to be accomplished before operation is begun now being largely achieved by the cystoscope, the perineal route will doubtless more often be chosen, but only in isolated cases complicated with stone. Cases of deep or bad stricture, with very small stones, or foreign bodies, or certain clearly defined tumors easily removable through the prostatic urethra, dilated to admission of a digit or partially incised, should without question receive this treatment. In short the whole aspect of vesical surgery has so completely changed within recent times, that it is manifestly inexpedient to longer gravely discuss lithotomy and its indications, the scenes have so shifted that truth and perspicuity are better served by other terms. Litholapaxy having been practically perfected for vesical calculus, we now have to labor for the greater perfection of supra pubic and perineal cystotomy for a number of diverse pathological conditions, with some of which stone occasionally coëxists; and one of the first steps in the new questions is doubtless a more preliminary topographical survey and diagnosis. In the past the high operation has not seldom been done for conditions which could have been as thoroughly and more judiciously dealt with by the simpler method had assurance of the state of affairs found been previously made out, and others undertaken by the perineum, which might have been better managed by the supra pubic plan, had it been possible to know as much before as after entering the bladder.

THE TITLES of papers to be read in the Sections at the ensuing meeting of the American Medical Association should be sent to the Chairman or Secretary of the Section where such papers belong as soon as possible, in order that the Section officers may be able to select gentlemen to lead in the discussions.

THE OBJECTOR.

Once upon a time it was our melancholy duty to attend a general meeting of the members of the medical profession, which had been called to take action pertaining to the decease of a highly respected brother physician. A chairman and secretary were selected, and on motion the usual committee was appointed to bring in resolutions suitable to the occasion. These were promptly reported, and after several speakers had referred to the exemplary character of the deceased, one of the brethren arose, and said he felt it a duty incumbent upon him and somewhat unpleasant to perform, but he could not sit still and witness the passage of those resolutions without a personal protest, inasmuch as the preamble referred to the dead man as a distinguished physician. That he never knew of the deceased having done anything to merit so eulogistic a title as that of being a "distinguished" member of the medical profession. The speaker said he knew that Dr. W. had been a successful teacher of anatomy in one of the colleges, had served as surgeon of a regiment during three years of the war, and a term of years as superintendent of a lunatic asylum, but all this, in addition to years of everyday private professional practice, did not entitle the gentleman to the prefix of "distinction" before his name, and hence his objection, and moved that the offending word be erased from the preamble. As there was no second to the motion, the mover thought his motives and remarks were not appreciated, and feeling lonesome, concluded to flock by himself and took his departure.

In most respects the objector was a good man, but saw nothing good in anything unless it presented an opportunity to object or enter a protest.

In a neighboring city the active working elements in the medical profession have for a number of years been segregated, and their influence greatly weakened, by being divided up in a number of societies. Attempts at a union of all in one have heretofore been frustrated by a few who held on to some ancient traditions, which gave them an opportunity to object to any sort of an amalgamation. Good and able men, every one of them, but one of the supreme purposes of their lives could not be let pass without their protest going on record. We are pleased to say, the union is an accomplished fact, and we predict that great good will come of it.

In another large city the local profession is divided into a number of rival elements for the support and conduct of a number of medical schools. In professional attainments the physicians of that city are the peers of those in any other city that can be named. Each school has one, two or more men in its faculty who are qualified for their positions and have the gift of easily imparting knowledge to others, and are excellent teachers, but the influence of these

men is greatly impaired by their professorial associates, who may be superior practitioners of their art and excellent in every other way, but are not capable teachers. These gentlemen of both classes will say, and honestly too, that they favor the advanced, the new medical education that is rapidly pressing its way to the front, but when a proposition is made, to unite all the city schools, so as to form one great teaching university, where everything pertaining to the art and science of medicine can be taught by thoroughly trained teachers, the objector rises to enter his protest against such a union, remarking that there are certain vested rights to be considered in the formation of such a combine. That certain gentlemen have in the past made contributions of time and money that cannot be ignored, and although they are not equal to the best of teachers in their department, still, they must be provided for, and such a union as that contemplated, will cause these gentlemen to be left out. And anyhow the objector goes on to say, two or more schools engender a healthy rivalry, that is better for all concerned, than to have one school alone in a great city. Forgetting that there may be a rivalry not only between the several professors in a great institution, but also between the great schools of the great cities.

One great school in either Berlin, Edinboro, Vienna or Paris is sufficient to absorb the acceptable medical teachers of an empire. So we are free to say one great school of medicine amply endowed with laboratories, and all needed accessories, including a faculty holding endowed chairs, is sufficient to meet all the wants of all the medical students whose homes are geographically tributary to any city west of the Allegheny mountains.

The time has passed and is forever gone for the organization of Commercial Medical Colleges, and the time is right now and propitious for the contemplation and bringing about of a union of all such contiguous institutions, and for the creation of colleges that have a firm and lasting foundation; which will stretch forth and draw into their faculties a corps of men who are trained to teach, and may be truly designated as medical pedagogues.

It is with great pleasure that we note the creation of a Section to be devoted to medical pedagogics at the Pan-American Congress. Such a Section in the American Medical Association would be singularly useful.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Dear Sir:—On page 191 of the February 18 number of THE JOURNAL, is an article in which Dr. L. S. Pilcher, President of the Medical Society of the State of New York, gives the American Medical Association to understand that *he* and *his* society are grandly indifferent as to anything the American Medical Association may do or say. And you, in commenting upon the same, say:

"In this action of the New York State Medical Society, there seems to be a rolling back and away of the clouds and mists that have obscured the relations of that organization with the American Medical Association," and further you say "that you look hopefully to the committee appointed by the American Medical Association at its last meeting to report for approval of and adoption by that organization of a Code of Ethics, Constitution and By-laws that will be acceptable, and provide an organic law that will make possible a unification and membership in one body of every practitioner of rational medicine in this country."

Now will you kindly permit me to have a say-so in this matter? If Dr. Pilcher and his society are totally indifferent as to any action the American Medical Association may take in the way of bringing about peace and harmony in the profession, what can the committee hope to do in the premises? Is there any hope of making peace with a man who regards you with perfect contempt? If there is a man in the United States who can frame words that are more expressive of utter contempt than are found in Dr. Pilcher's remarks on the past action of the Association, let him stand up. And if the committee appointed by the Association at its last meeting have no more back-bone in them than to try to pacify Dr. Pilcher and his society, they deserve all the contempt with which they have met at his hands. Very respectfully,

W. P. HOWLE, M.D.

Oran, Scott Co., Mo., February 23, 1893.

If the JOURNAL's correspondent will carefully read the proceedings of the New York State Medical Society he will observe that DR. PILCHER, in his address recommended the appointment of a committee to confer with the committee from the American Medical Association, and that the Society as a body went even farther than this in their desire for a condition of amity, and by a unanimous vote forestalled the purpose of those committees, by revoking the new Code of Ethics which had been created and adopted by the society some years ago.

The purpose of this action seems to us to have been intended to act as a removal of a serious bar of antagonism that stood in the way of a speedy renewal of the old relations of affiliation with the American Medical Association. Our natural inference is that such was the motive and spirit that actuated the members of the New York State Medical Society. So mote it be.

So far as even an apparent expression of contempt on the part of DR. PILCHER is concerned, we fail to perceive it, and do not believe he had any intention of making use of an expression conveying such a meaning.

So far as our own reference to a revision of the Code of Ethics is concerned, we are free to say this was demanded by the American Medical Association at its last meeting, or it would not have appointed a committee for that purpose.

NEBRASKA STATE MEDICAL SOCIETY.—The yearly meeting of the Nebraska State Medical Society will take place at Nebraska City, May, 16, 17 and 18.

DOMESTIC CORRESPONDENCE.

Removal of the Ovaries, etc., in Public Institutions for the Insane.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

I am quite in sympathy with Dr. Rohé in his protest (in the current issue of THE JOURNAL) against the editorial article of February 4, under the above title. I was minded to attack it myself immediately upon its appearance, but desisted because it seemed to me that an attack would have more weight if it came first from an experienced gynecologist. But now that this attack has been made, I venture to add (and I am not a gynecologist at all) that as against the deliverance of the "legal member" of the Lunacy Committee of the Pennsylvania State Board of Charities—that neither the patient nor her friends for her can give legal consent to the operation, etc., it may be said that neither can she, nor her friends for her, give legal consent to the disposition of her body or her property. But as this might work hardship to herself or her friends, or both combined, the courts may undertake, upon the representations of competent and reliable persons, to do either or both for the benefit of the insane person.

If therefore the courts can order her incarceration as a precaution against personal injury, or the disposal of her property to prevent financial loss, may they not have authority to order an operation, if surgeons of acknowledged skill and integrity decide it to be advisable? And does not this make, as it should, the judgment of these surgeons, after all, the judgment of the court of last resort?

As against the idea of the chairman of the committee (Dr. Morton) I want to suggest that outside of the question of cure, there is a sociological question which should not be forgotten.

If every insane woman could be kept in a detention hospital, where there could be no association with any but her own sex, this might be of little importance. It may be so in Pennsylvania. But in Iowa it is the custom to return the incurable insane to the care of their friends at home if they have homes, and if not, to the "county house" of the county from which they came. In either case there is more or less commingling of the sexes, and occasionally undesirable results follow.

Recently a friend of mine made an oöphorectomy upon a selected case in the "county house." She made a rapid recovery from the operation, and for a time gave promise of a return to sanity. Later on, however, she relapsed into the old mental condition. But inasmuch as her insanity had a markedly erotic type, we all felt that the operation was properly undertaken; because it gave the woman, as well as the public at large, a safeguard worth having, even if it was negative in result from a remedial standpoint.

This view, I think, must commend itself to all reasonable people.

H. B. YARSG, M.D.

Burlington, Ia., February 18, 1893.

Revision of the Code of Ethics.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Dear Sir:—THE JOURNAL of February 18, 1893, contains two parts of an address by the President of the Medical Society of the State of New York, and one part of the report of a committee on the President's address. A few comments on those parts of the address and on the committee's report may be in order, since they relate to the ethical question now under discussion.

1. In June, 1892, the American Medical Association appointed a committee to meet like committees from the New

York State Medical Association and the Medical Society of the State of New York, and hold a conference "for the purpose of adjusting all questions of eligibility of members of the said Medical Society of New York to membership in this Association." It is apparent that the object of the American Association was to learn the particular grievances of the disaffected and to devise means to soften them, to bring back many who had strayed from the fold, and to stifle the bitter disputes which have proved so injurious to them and to the whole medical profession; but they have rejected the proposition in a spirit that scarcely indicates tolerance. The resolution transmitted by the Permanent Secretary of the American Association seems sufficiently explicit, but is caviled at, although its intent is acknowledged.

2. In the address delivered before the Medical Society of New York, the following may be noted: "It (the American Association) is a voluntary association, responsible to no one, and may change its standard of admission at its will." The American Association, like many other scientific organizations, is voluntary, but it is responsible for its acts to all honest men. It is not less pure because voluntary, and being voluntary does not lower its standard of morals, while this enables it to admit to its ranks those only who subscribe in good faith to its code of morals. The disaffected would probably like the Association to change its standard of admission not at its will, but at theirs.

3. Another noteworthy specimen of the tone of the address is the following: "It (the New York Society) must content itself with regulating its own standards, as it now does, suggesting in turn that it is equally indelicate for organizations which have no supervising relations to it to extend advice as to its internal affairs." This is the same as saying that the American Association must not meddle with the affairs of the New York Society, which shall have no ethical code if it so decides; and it has so decided. After this decision, the American Association will be justified in saying that it will not meddle with a society that repudiates good morals.

4. The committee on the New York Society address concluded their report by offering a resolution which, with the report, was "unanimously adopted." The resolution is to the effect that the Society deems it unwise to appoint the Committee requested by the American Association "but the Society ventures to express the hope that the American Medical Association, at no distant day, will take such action as will remove the merely technical obstacle to the most cordial coöperation between the two societies." To hope that there can ever be any coöperation of two bodies of men, one of which recognizes no code of morals, seems as futile as to expect Christians and Mohammedans to join hands on questions of faith! There is no mere technical, but an insurmountable obstacle in the way until the Medical Society of the State of New York readopts the system of morals of the National Association; until then how can there be comity or any kind of recognition, if the "general sense of the profession" be rightly interpreted?

5. The "no coders" may imagine that they shall be able to do as they please, but will find themselves constantly confronted by customs, by ethics good and bad from which to choose. All kinds of men, savage or civilized, honest or dishonest, have their ethics. About two centuries ago the ethics of beggars were codified by a scholarly mendicant. The perusal of the document is as instructive as it is entertaining. Bandits, burglars, cutpurses, sneak thieves, receivers of stolen goods, and other miscreants, have their written ethics, among which is the well known provision that there should be honesty among rogues. Men of these several classes adhere consistently to their ethics, and are unanimously in favor of abolishing the criminal code and the decalogue, which are in such conflict with their actions. But

it does seem incredible that men belonging to a liberal profession should reject a code of good morals which tells them to be just and how to be just! It is a monstrous anomaly, in this enlightened age, that men of reason should not want laws which forbid that injustice should be done to them! One of the sayings of the "no coders" is that "no man shall regulate their actions." As every student of philosophy knows, moral laws are not made by single individuals; they result from the researches of many moralists who compile the records of good actions, good customs, which, by others, are arranged systematically, and which are finally codified by organized associations of men, just as many laws have been compiled and codified from the most ancient customs.

6. The opponents of the National Code do not appear to have found out how laborious it is to codify and properly formulate moral maxims. If they had been aware of the difficulties of accomplishing the task creditably, they probably never would have rushed forward with their "new code" and the "newer code," and most likely would not have attacked the American Code. The last hasty performance of the State Society of New York was the abrogation of its "new code" and the immediate declaration for "no code," as its committee and all the members may have thought, but the committee, seemingly without intending to do so, did recommend a "new code No. 2," which they style rules, and which was unanimously adopted by the Society. In order that this "new code No. 2" be clearly and unmistakably understood, its sentences will be separated so as to represent distinct paragraphs, as follows:

a. "The Society reserves to itself the right to punish its members for any unprofessional conduct."

b. "The determination of what shall be considered unprofessional conduct shall rest with the Society."

c. "If at any time charges are preferred against a member of the Society, these charges shall be referred to a committee which already exists for a similar purpose."

d. "This rule shall take the place of paragraph eight of chapter six of the by-laws, as well as the rules adopted by this Society in February, 1892."

Such is the present Code of Ethics of the New York Society, despite its declaration that it has no Code. It is unpleasant to be placed in a wrong position, but it is unpardonable in a committee to render ridiculous the body it represents. The commentary on these four remarkable paragraphs will be brief.

a. Assuredly the Medical Society of New York would not be likely to delegate the "the punishment" of its own offending members to some other institution. Without meddlesome intent, it is mildly suggested that the rule reserving the right to punish seems superfluous.

b. It does not appear that the State Society of New York has determined what shall constitute unprofessional conduct. If such determination is not in its archives no member can with justice be tried and condemned for the violation of a law which is not clearly defined and recorded.

c. It seems like the extreme of inconsistency and injustice for a society to entertain charges preferred against a member, when that society has neither published nor established an intelligible standard of morals, notwithstanding that there already exists a committee for a "similar purpose."

d. The committee very properly gives the name rules to this "new code No. 2" which is to replace the set of rules called "new code" in February, 1892, because most codes of morals consist of a statement of rules of conduct. But unfortunately neither the abrogated "new code" nor its substitute "new code No. 2" contain distinct statements of rules of conduct. Unprofessional conduct is too general, too vague, it has many degrees which should be stated.

This brief examination leads to the conclusion that "new

code No. 2" is incomplete and that it will probably require at least seventeen paragraphs, but if the new paragraphs be like the first four, no member need fear to be "punished."

7. It is not safe to attack a carefully prepared document known to have stood the scrutiny of many scholars for forty-five years in respect of its teachings and literary merits. Its detractors having failed to show cause why it should be abrogated, their case will probably be dismissed and they will consequently have no standing in the Association. Fanatics may repudiate the admirably phrased moral precepts of the Code, but these maxims will be read as long as truth is loved, as justice is revered, as honor is prized, as virtue is cherished, as sublime thoughts are admired, and as long as there is the least semblance of literary taste.

8. The advocates of the American Code have had no other motive than the defense of the production of such moralists and scholars as Percival, Hays, Clark, and others, from the gratuitous attacks that have been made upon it by the disaffected and by their champions, who characterize its language as obscure and redundant, and its provisions as unnecessary and useless. But these attacks have consisted of mere assertions unaccompanied by evidence or argument. On the other hand, after repeated examinations, the defenders of the Code found its dominant characteristics to be explicitness without verbosity, fullness of detail without undue expansion, and conciseness without obscurity. These qualities added to the exalted moral precepts which it inculcates give it the greatest value as an ethical system for the use of the profession and of the people.

9. In this strife, which has lasted ten long years, many utterances, spoken and written, have doubtless stung consciences and offended pride; but was there ever contest without painful incidents, was ever contestant exempt from blame? Let the disaffected yield to truth and justice, let their rancor cease, let there be a truce, and there will surely follow peace, good will, harmony, union, prosperity, good fellowship, and oblivion of the past! Again all loyal members of the profession fervently exhort the disaffected to cease consorting with the enemies of truth and justice and unite with the great national confraternity to sustain scientific medicine. Such a close union would be most beneficial to the nation, glorious to the profession, honorable to all, and to the best interests of individuals. Charlatanism and crafty ignorance would then quake at sight of the solid phalanx of intelligent honesty.

A CONSERVATIVE MEMBER.

MISCELLANY.

OPHTHALMOLOGICAL SECTION OF THE PAN-AMERICAN MEDICAL CONGRESS.—Dr. Julian J. Chisolm of Baltimore, who is the Chief of the Ophthalmological Section of the Congress, has organized his Department with the following gentlemen, well known, as ophthalmic surgeons.

The honorable presidents of this Section are: Dr. Herman Knapp, New York; Dr. Eugene Smith, Detroit; Dr. Stephen C. Ayres, Cincinnati; Dr. X. C. Scott, Cleveland; Dr. Abner Calhoun, Atlanta; Dr. Herbert Harlan, Baltimore; Dr. Chas. W. Kollock, Charleston; Dr. Stephen C. Riehy, Washington; Dr. Jose Ramous, City of Mexico; Dr. G. C. Savage, Nashville; Dr. J. E. Minney Topeka; Dr. W. H. Carmelt, New Haven; Dr. H. J. Baldwin, Montgomery; Dr. Aurelio Alareo, Lima, Peru; Dr. Carlos Finley, Havana, Cuba; Dr. Hasket Derby, Boston; Dr. J. C. Kipp, Newark; Dr. Dudley S. Reynolds, Louisville; Dr. Maximó Gienfuagos, Santiago; Dr. Chas. E. Michel, St. Louis; Dr. Samuel D. Risley, Philadelphia; Dr. R. H. Lewis, Raleigh; Dr. T. E. Murrill, Little Rock; Dr. E. C. Rivers, Denver; Dr. C. M. Shields, Richmond; Dr. J. W. Fulton, St. Paul.

In the Advisory Council are the following ophthalmic Surgeons: Dr. Adolph Alt, St. Louis; Dr. L. W. Fox, Philadelphia; Dr. Geo. T. Stevens, New York; Dr. Edward Jackson,

Philadelphia; Dr. B. A. Randall, Philadelphia; Dr. H. V. Wurdeman, Milwaukee; Dr. R. Sattler, Cincinnati; Dr. J. J. Thompson, Kansas City; Dr. L. Connor, Detroit; Dr. R. L. Randolph, Baltimore; Dr. J. A. White, Richmond; Dr. S. M. Burnett, Washington; Dr. A. B. Baxter, Cleveland; Dr. J. P. Parker, Kansas City.

Dr. Geo. M. Gould, of Philadelphia, English-speaking Secretary; Dr. J. Harris Pierpont, of Pensacola, Spanish-speaking Secretary.

SECTION ON ANATOMY OF THE PAN-AMERICAN MEDICAL CONGRESS to be held at Washington, United States of America, September 5, 1893. Executive President, Dr. John B. Roberts, 1627 Walnut Street, Philadelphia, Pa. Secretaries, Dr. D. S. Lamb, (English speaking); Dr. A. M. Fernandes, (Spanish speaking) 194 W. 10th St., New York, N. Y.

This Section will be devoted to the study of Human and Comparative Anatomy and of Biology as departments of natural science as well as in their relations to practical medicine and surgery. Members of the medical profession in Latin American countries are urged to prepare scientific communications to be read before the Section. Much valuable material will thus be collected and articles of scientific value will find permanent place in the Transactions of the Congress.

The regulations applying to papers and discussions, which have been adopted by the Executive Committee of the Congress are as follows:

Contributors are required to forward abstracts of papers not to exceed six hundred words each, to be in the hands of the Secretary-General not later than the tenth of July, 1893. These abstracts shall be translated into English, French, Spanish and Portuguese, and shall be placed upon the program which has not been thus presented by abstract. Abstracts will be translated by the Literary Bureau of the Congress at the request of contributors, and should be forwarded through the Secretaries of Sections. Papers to be presented to Sections must not consume more than twenty minutes each in reading, and when of greater length should be read by abstract not exceeding twenty minutes in length. Papers read by abstract may be printed in full in the transactions, subject to approval by the Editorial Committee. Papers and discussions will be printed in the language in which they may be presented. All papers read in the Sections shall be surrendered to Secretaries of the Sections; all addresses read in the General Session shall be surrendered to Secretary-General as soon as read; and all discussions shall be at once reduced to writing by the participants.

The Executive President of the Section asks the coöperation of all interested in Anatomy and Biology, in making the deliberations of the Section valuable to those present at the meeting and worthy of preservation in the Volume of Transactions of the Congress.

HIGHER MEDICAL EDUCATION AND THE WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA.—It will encourage the friends of higher medical education to know that all matriculantes hereafter entering the Woman's Medical College of Pennsylvania must take four annual courses of lectures before obtaining the degree of Doctor of Medicine. This Philadelphia school for women has long been in favor of advanced standards; and with four compulsory graded courses of seven months each ought to prove its efficiency in supplying the community with well educated women physicians.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from February 18, 1893, to February 24, 1893.

Under the authority of an Act of Congress approved February 8, 1893, Capt. James A. Finley, Asst. Surgeon, is, by direction of the President, placed upon the retired list of the Army, to date from February 16, 1893, the date of his acceptance of his appointment under the provisions of said Act.

Major James P. Kimball, Surgeon U. S. A., is granted leave of absence for three months, on surgeon's certificate of disability, with permission to leave the Dept. of Texas.

OFFICIAL LIST OF CHANGES in the Medical Corps of the U. S. Navy, for the Week Ending February 25, 1893.

P. A. Surgeon E. P. Stone, ordered to Naval Hospital, Chelsea, Mass.

Surgeon C. U. Gravatt, from Naval Hospital, New York, March 3, and granted three months' leave.

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No. 10.

ORIGINAL ARTICLES.

ABDOMINAL SURGERY AND ITS EVOLUTION AND INVOLUTION.

Read and discussed before the Marion County Medical Society,
November 15, 1892.

BY JOSEPH EASTMAN, M.D., LL.D.,

LATE PROFESSOR OF ANATOMY AND PROFESSOR DISEASES OF WOMEN AND
ABDOMINAL SURGERY, CENTRAL COLLEGE OF PHYSICIANS
AND SURGEONS, INDIANAPOLIS.

While walking with a professional friend in the city of Chicago, I asked what had become of a certain doctor with whose name I had become familiar through his contributions to surgical literature some five years ago. The answer was, "He is doing some practice now." This good doctor's answer impressed me and begat other questions. How much of our current literature comes from those who write before they practice? How much from doctors who practice before they write, and what is the real motive which prompts the writer? Is it to place upon the altar of science the tithes of his experience? If so, have they been tested in the crucible of truth, and is he giving us only the atom of gold which he has found among the dross, or is our embryonic specialist intoxicated with the little knowledge gained by reading plus that obtained by his maiden efforts in operating, and like the bumblebee, largest when he first emerges from the comb, "seeking to be heard for his much speaking." If the latter is true, the average student must be wide awake to winnow the wheat from the chaff when the literature of abdominal surgery is burdened with productions from those who have little surgical aptitude, less originality and still less wisdom born of experience. Having read an article headed "Who Should and Who Should Not Teach Gynecology?" it will not be considered impertinent, I hope, to ask who are our teachers? What is their warrant for teaching? Really, are many of them specialists at all? Prof. J. T. Hodgen, of St. Louis, defined a specialist as "a most accomplished physician and surgeon and something more." "Too often," said the doctor, "he is something less." It is incontestably true that the cultivation given a mind, already broad, by a dozen years of general practice, widens and rounds up the specialist's professional character as nothing else can do. At the same time, as one extreme follows another, so the great master workmen in our specialty have been and are men who by strong will powers forced broad faculties to work in a narrow channel, becoming educated to the work, capable of comprehending the great principles of our science, and so acting in a given emergency as to bring honor, not disgrace to our noble art. These masters, most of them, first became familiar with all diseases, their complications and their treatment. Then finding it necessary that the mind be relieved of the burden incident

to the thorough study of so broad a subject, they abandoned general practice to the end, that their faculties could be unrestrained in their tendencies toward special studies and investigations. It is the taking the mind off from many things that enables it to concentrate with force and effect on a few things. To plow deep implies no attempt to turn a wide furrow. What contributions to science and blessings to humanity have come from concentration of the thoughts of great brains into specialties! To illustrate, I need only to mention the name of Edison. Before the hard-working general practitioner concedes to their demand for recognition as a specialist, it might be well for him to ask a few questions: What natural adaptation, what general research in anatomy and pathology has the alleged specialist acquired? Has he served for a sufficient time under a master? Is he so located and situated as to warrant him in abandoning all else and making it a life's work, and thereby acquiring a large experience? In much of our work the mind follows the educated finger by faith where sight is impossible. I still cling to the aphorism used before our State Society some years since, that honor to American statistics was in the direction of many operations by the few and fewer operations by the many. That there must be amateurs on every stage may be true. It is equally true that the great masters of the drama added to natural talent long and thorough drill under a master. These masters will not essay a single performance without their accustomed support. The surgical stage should be no exception, at least until our great actors shall be able to avert the heartaches which come to them when the curtain falls on a death scene. The emphatic statement of J. Greig Smith is in point: "Abdominal surgery is no longer a field for legitimate and versatile experiment. Certain fixed and useful laws and customs have been laid down by the dearly bought experience of great men. The abdominal surgeon ought to begin fully equipped with such knowledge as has been gathered for him." This being true of the operator, what of the adventurer who with limited experience seeks to achieve fame by writing up his maiden efforts in operating. When one seeks recognition as an operator or teacher, we have a right to know what reasons they have for the faith they would teach. The facts seem to warrant the assertion that some of the current literature is dangerous. There are many things contained in the literature of what is now our established specialty which would seem to indicate that the writers were not willing to depend upon merit for professional preferment. I have neither time nor inclination to give more than a few examples. They will serve, as I believe, to bring up points enough for the discussion of the evening.

The contributions to our literature which retard rather than aid progress do not all come from begin-

ners. Some distinguished operators write that which the hand of progression will soon obliterate. I have written a few things myself which a riper experience would not have given to the profession. In the *America Journal of Obstetrics* of July, 1889, one Curtis Miller announced that living in the city of Charlestown, W. Va., he had found 144 cases demanding abdominal section; had operated on all of them, and in this number there had been no death. The query instinctively came to my mind, not only how a beginner could have such success, but how could he secure so many cases in so short a time. I wrote to a friend near the Virginia line making inquiries about this phenomenal report, intimating that such an operator could well afford to locate his patients or give the name of attending physician. My friend answered my interrogation by saying he thought this man Miller had been with Tait and was not handicapped by former professional or surgical methods in obtaining cases or records in operating. The statement that this operator had been with Tait was explanatory. I could, as I believed, read between the lines. I have not seen any reports from this operator since. I have, however, seen reports from other operators which I must consider as startling as this. It seems to me that the time has come when our standard medical journals should require something more than the say-so of the operators who publish such astonishing results. Unfortunately, reports are published by operators and those visiting them, and reported from journal to journal, which would put an interrogation point into the eye of Dr. Thomas Keith, of London, similar to those seen when told of the phenomenal results obtained at the hands of Mr. Tait. A number of those who have been to Birmingham use more than the Staffordshire knot in exemplification of their tutor. A few seek every opportunity to differ with a more conservative fellow-worker, and violate the laws of common decency in the use of sarcastic epithets, and then with a sort of "tin horn huxtering" for patients and notoriety make the assertion, that they do all kinds of intra-abdominal operations with a fatality of less than 3 per cent. From the lips of one of Tait's pupils I heard the statement that in 100 cases of removal of the appendages, Tait nearly always had at least five deaths. There are hundreds of women in a state bordering on desperation, with neurasthenia expressing itself locally in one or more of the pelvic organs. They are willing to submit to anything under heaven which the enthusiastic but misguided coeliotomist would advise. His mind, intoxicated with the idea of the removal of a reflex cause, scarcely realizes that the consummate wisdom of a veteran in this line of work is often inadequate to decide whether pelvic symptoms are a local expression of a general neurasthenia or whether the general condition is reflected from a diseased pelvic organ. Physical deterioration is the law of advancing civilization. All neurasthenics are in a condition of mental and physical hyperæsthesia, these general conditions constantly expressing themselves in painful menstruation and tender ovaries. A resort to surgery in such cases is another instance where boldness is not tempered by wisdom, and where cutting does not cure. Numerous cases have been brought to my observation by doctors who had been reading the dangerous surgical literature of the day; they supposing that I would unhesitatingly open the

abdominal cavity in all stages of peritonitis (and this disease has been very prevalent since the epidemic of la grippe) from the very beginning, to the time when the abdomen was enormously distended, with complete obstruction from cobwebbed adhesions of the bowels to cases *in articulo mortis*. Some of them I watched for days and weeks, at last finding indications for operation—operated with success—but in more of them a time never came when I could see my way clear to advise opening the abdominal cavity. For example: In the suburb of Irvington I saw five cases in consultation with Dr. Barnhill, my former pupil. The first one we opened the abdominal cavity, finding extensive pelvic peritonitis involving the vermiform appendix, tubes and ovaries; she made a good recovery. The second had only been sick a few days. The abdomen was distended, the pulse so rapid and feeble that I unhesitatingly stated that no operation was to be thought of, as it would only launch the patient from the operating table into eternity. The third was a well pronounced case of appendicitis which made a slow but sure recovery without any operative interference, notwithstanding I saw the patient a number of times, fully expecting the time might come when an operation would be demanded. The fourth and fifth cases were both well pronounced cases of perityphlitis, neither of them presenting indications for operation and both making good recoveries. Other towns that I have visited over the State have furnished their list of similar cases. The pendulum of surgical aggression has been swung to the extreme. Too many are saying that operative interference offers the only hope. Too often beginners urge operations as practically without danger, not on the basis of their own experience, but on what they believe to be the large and honestly reported experience of those whose reckless use of language in condemnation of a fellow-worker is suggestive of reckless struggling with the truth in reporting cases. I have had my small share of surgical triumphs, and my profession has given me abundant credit for the same, and honored me fully up to my deserts. Far be it from me to be envious of the achievements of any one who is conscientiously doing his best in the service of humanity. On the contrary, I extend the hand of fellowship to all disposed to engage in this specialty, but when my credulity is overtaxed I have a right to console myself as did Hume in his philosophy. He reasoned that Christ never rose from the dead, because he had only the testimony of the twelve apostles, and firmly believed that in that day and age of the world lying was twelve times more common than the resurrection of dead men. In a circular sent me from a life insurance company I read: "During the early part of the current year the death-rate throughout the country was unusually large. La grippe and pulmonary disease made sad havoc everywhere." I believe this to be true. I saw evidence of the epidemic expending its force within the abdominal cavity in a large number of cases. I make chemical tests of urine to determine what anæsthetic to use and to assist me in appreciating the dangers of operating in a given case. In 30 per cent. of my cases I find the specific gravity ranging from 1030 to 1040, with varying quantities of sugar and not unfrequently albumen. This I did not find before the epidemic referred to, but during and since. For successful surgical work I consider good kidneys of very great

importance, and am convinced from observation that in more than 5 per cent. of cases demanding surgical procedure the excretory function of the kidney is so impaired as to be worthy of serious consideration as an element of danger following our work. I have looked in vain for some statement from these phenomenal operators that they were a little less successful during the epidemic. Does the abdominal surgeon stand alone, and not have his death certificates number the more in consequence of these fatal epidemics? Are we to believe that in the hands of these men abdominal sections are uninfluenced by and are a preventive of la grippe? If so, I shall not be surprised if the literature of the near future contains a series of abdominal sections for Asiatic cholera with an astonishing number of successes. Another point to which I would invite attention is, what is meant when the statement is made that A or B has made so many operations without a death? One instinctively asks, "Did the patients simply not die on the operating table? Did they rally from the shock, live until the sutures were removed, regain their feet, and was their condition made better or worse by the operation?" If a statement accompanied these reports as to what is meant by the words "without a death, with success," etc., the truthful operator would have less hesitancy in comparing his record with the truthless.

Exploratory incision has now been accepted as a means of diagnosis, and the current literature of the day would lead the average physician to believe that it was comparatively free from danger. This is true to a certain extent. At the same time, I am well convinced that the so-called simple exploratory incision should only be undertaken by the well equipped and thoroughly competent abdominal surgeon. If the abdomen contains an ovarian cyst or a fibroid tumor, there is strong probability that the diagnosis can be made with reasonable accuracy before the abdomen is opened, but when we admit that the operation is made for diagnostic purposes, we should be willing to concede that the one who does it should have the nimble wit in the ends of his fingers which enables him, by the sense of feeling, to differentiate between the normal anatomy and pathological changes. Not only this, but he should be competent to do anything known to the surgery of the abdomen and do it according to the principles established by the dearly bought experience of our master craftsmen. Many cases have come to my mind where practitioners anxious to obtain the prestige presumably gained by abdominal section, have ventured to open the swollen abdomen with no definite idea what they were going after, where they were going to locate it, or what they were going to do with it, after they had found it. After opening the abdomen freely, with the hope that they might see something which the fingers had not been able to feel, as their fingers had taught them no more about the abdominal viscera than the fingers taught the obstetrician in his first examination, they found the intestines distended with gas, piled up in formidable stacks over the abdomen and even falling down on the table. Their position was something like the man who attempted to repair the clock; he had no difficulty in taking the clock to pieces, but when he attempted to put it together again he imagined he had wheels enough for fourteen clocks. So the amateur operator would believe there were intestines enough to fill fourteen

men or women. In cases where the abdomen is markedly distended, the experienced operator might do no better; but the veteran in abdominal surgery, never having much faith in operative procedure for peritonitis, has learned to know that unless there is some evidence of localization of the process and products of inflammation, surgical interference is worse than useless. Who for a moment would think of plunging a trocar into the chest in acute pleuro-pneumonia, much less to think of making free incision for the purpose of irrigating and destroying the germs of inflammation. A little later, when the pleural cavity is filling with serum and the absorbents are not able to take up the same, or if this fluid is becoming purulent, then opening the chest, with a thorough washing and drainage, is a surgical procedure where boldness is tempered by wisdom. The same reasoning applies with even greater force to the serous lining of the pelvis. In abdominal surgery, as in medical practice, the judgment we use in the adaptation of the remedy, not only to the disease but to the particular stage of disease, is the measure of our success. I know of no inflammation that is not of septic origin. In the earlier stages of septic peritonitis surgical interference is but adding fuel to the flames. Knowsley Thornton (*American Journal of the Medical Sciences*, October, 1888, p. 371) says: "The more I see of abdominal surgery the more I am convinced that operation during acute peritonitis is very dangerous; whereas in the subacute and chronic stage the patient bears the operation as well, or better, than with a perfectly healthy peritoneum." There are additional agents which materially aid in tiding the patient over the acute stage of disease to the time when the microorganisms have become materially less active, so that surgical efforts are curative by removal of the localized products of inflammation. Some of the literature of the day, given out by distinguished members of the profession, is to my mind strikingly misleading, if not dangerous. For example, Mr. Tait, whose fame is world-wide, and who has been a great benefactor of women, in his book on Diseases of Women and Abdominal Surgery (page 117) says: "The proposal to deal with cancer of the uterus by complete removal of the organ meets, I need hardly add, with my strong disapproval. My reasons are, that its primary mortality must always be heavy, and that the few cases in which the disease does not recur are clearly errors of diagnosis. Further, operations for a disease which give unjustifiable secondary results have no place in good surgery; and it complicates in the confused mind of the public, the issue of electing to have operations performed the secondary results of which are perfect. As I like my work to be stable, I have always opposed this cutting out of the uterus for cancer, and my first judgment has been confirmed by the results." That many women are given a respite from death, others' lives materially prolonged, while still others are being cured by this operation, some of us know. For my part I could produce more than a score of women who have been blest by this operation, done at intervals from six years down to one week. It is very gratifying to Mr. Tait, no doubt, to make the reference he does to the uselessness of extirpation of the cancerous uterus or Emmett's operation on the cervix. It would be very amusing to me to see these great benefactors of womankind, and Mr. Tait in particular, defend him-

self in the presence of a few dozen of these women who are enthusiastic in their expression of the blessings they have received from these operations. It is not surprising, however, that vaginal extirpation of the uterus should have been slow in gaining recognition as a comparatively safe procedure. It has been practiced by many with an utter disregard of the sound surgical principles which govern opening the abdominal cavity above the pubes. Even recently, I note a doctor insisting that many forceps to secure the broad ligament are equally as good as a lesser number. When an operation is done in that manner, it leaves the contused gangrenous portions of the broad ligament to come in contact with portions of the omentum, mesentery and intestines, thus inviting septic peritonitis. Now, all of this could be easily prevented by first constricting the broad ligaments to a round mass by a single ligature, bringing them down into the angles of the wound, and transfixing with additional ligatures or applying a single clamp. In this way we have, not only complete sero-serous approximation of the entire wound with no raw surface whatever left within the peritoneal cavity, but more than that, by this rounding and bringing down of the broad ligaments and fixing them in the upper angle of the wound, we have the patient guaranteed against vaginal prolapse and its resultant cystocele and rectocele; sequelæ almost invariably following the operation where many forceps are used, and the broad ligaments are not first rounded. When about to visit Birmingham, Eng., some years ago, a professional friend, whose reputation in gynecology is international, provided me with a letter of introduction to Dr. Savage. I thought I knew of the man, believing that he was the author of a book on the female pelvic organs. I was mistaken. My introduction was to another man who in reality I had never heard of. I found him sitting as Chairman of the Gynecological Section of the British Medical Association. I shall always love my friend the better because of his kindly efforts to have me know this man. The meeting adjourned at 3 P.M. I accompanied him to his private hospital, saw him remove a kidney. I then rode with him to the Birmingham Hospital for Women, a distance of two miles, saw him make two abdominal sections. I never saw a more careful, painstaking, and at the same time rapid operator handle an instrument. I looked at my watch and found that I had been introduced to the doctor just two hours. I found that he had equal rights in the Birmingham Hospital for Women with the renowned Lawson Tait and was doing the same amount of work there, and wondered why the world had not heard more of this man. I learned that he had as much work as he could possibly do, and that there was so much reckless reporting of cases, that he was disinclined to compete with those less conscientious and truthful in their work. Most of our American cities have similar men. The reports of their conscientious, painstaking work are rarely seen. They are unwilling to compete with the modern hustlers with their loud declarations of success in societies and journals, aided by sycophants whom they employ to write their praise. Our literature has its good and bad teaching coming from those high and low in the profession; coming from those hustled into notoriety by cliques and rings, and coming from those manfully struggling against many obstacles thrown in their way. After all, we find in

it an abundance of knowledge and some wisdom.

"Knowledge and wisdom, far from being one,
Have oftentimes no connection; knowledge dwells
In heads replete with thoughts of other men;
Wisdom in minds attentive to their own.
Knowledge, a rude unprofitable mass,
The mere materials with which wisdom builds,
Till hewed and squared and fitted to its place,
Doth but encumber whom it seems t' enrich.
Knowledge is proud to think it knows so much;
Wisdom is humble that it knows no more."

—*Comper.*

By all the sacred memories which cling to the words mother, wife, sister or daughter, let him, who aspires to be the physician of women, be a gentleman. "A man of the keenest sensibilities and the most delicate sympathies." Let him be an *honest* man. Let *truth* ever be his guiding star. I can say in all sincerity that I believe my profession and my specialty have as large a per cent. of honest men and honest women as any other profession or any other business, and have no remedy to suggest to correct the wrong doing of the few who, disregarding that beautiful aphorism, "the surest way to secure professional pre-ferment is to merit it," hustle for business in a way that would be beneath the dignity of men engaged in commercial pursuits.

"It were a heaven on earth
To have our minds illumined with knowledge
To move in charity
And turn on poles of truth."

—*Sir Wm. Gull.*

A DAY WITH PROFESSOR VIRCHOW AT CHARITÉ HOSPITAL, BERLIN.

BY ROBERT REYBURN, A.M., M.D.

PROFESSOR OF PHYSIOLOGY AND CLINICAL SURGERY, MEDICAL DEPARTMENT HOWARD UNIVERSITY, WASHINGTON, D. C.

Among the most interesting memories that I retain of my trip to Europe last summer, was a visit that I paid to Professor Rudolph Virchow in Berlin, on July 23, 1892. Professor Virchow, to all Americans (and indeed to all men of every nation who sympathize with the cause of free speech and free thought), is the most interesting scientific man in Europe. He is not only preëminent as a scientist and pathologist, but is a man who always has aided the cause of freedom everywhere and especially in his own country. He was the man whom Bismark in his days of arbitrary power especially hated. In 1849, and for seven years thereafter, he was banished from his professional chair at Berlin, on account of his liberal opinions, but was recalled to his duties in the University in 1856. During the period of his absence he distinguished himself by the lectures he delivered in the University of Wurtzburg these were the first germs of the ideas, which finally developed into his great book on cellular pathology. Professor Virchow is director of the famous pathological institute of the University of Berlin, which is one of a group of buildings composing the medical department of that institution. The Charité Hospital, in which clinical instruction is given to the medical students of the university, and the laboratory buildings in which Professor Koch carries on his investigations, are also situated on the same grounds. In company with Dr. Fulleborn I attended Professor Virchow's lecture, which was held at 10 A.M., the subject of the lecture was carcinoma. I need scarcely say that I was deeply interested in both the man and

his subject. The room in which he lectured will probably accommodate two hundred students; every seat was filled and the students were almost all engaged in taking notes of the lecture, and were apparently eager to catch every word that fell from his lips. Around the table near which he lectured were a large number of pathological specimens, both in jars and on dishes, illustrative of the lecture. These were passed around the class from hand to hand as the lecture proceeded thus fully illustrating the subject.

Professor Virchow lectures in an easy colloquial manner. He speaks beautiful German and every word is pronounced so clearly and distinctly that he is easily followed even by foreigners who have an imperfect knowledge of the German language. After the lecture was over I went to his private office in the university building, and presented my letter of introduction from Howard University, and was very courteously received. Professor Virchow is of medium height, he is somewhat stout in figure, and is apparently in excellent health and vigor for a man of his years (he having passed his seventieth birthday).

He speaks excellent English and seems very kindly disposed towards Americans. During our conversation I asked him if he could not come over to Chicago during the coming year to our Columbian Exposition, and assured him that I felt certain he would receive a royal welcome from the medical profession in America. He replied, "No I think I cannot come; I am now past seventy and America is very far". His office was nearly filled with a large number of skulls of varying shapes and sizes, which he had brought there for the purpose of study. He stated to me that he was now engaged in writing a book upon the crania of America, which would be published during the coming year. On parting from him he expressed a desire to be remembered to his professional brethren in America. After leaving Professor Virchow I went to his demonstration room, where every day are brought the pathological specimens procured from the bodies of the patients who had died in the hospital during the previous twenty-four hours. These specimens are procured for examination and study by the medical students of the university, and were brought in on fifteen wooden dishes or trays, about sixteen or eighteen inches in diameter; each one of the dishes contained from one to three specimens. When we remember that all these were the results of the post-mortems made in the hospital in a single day, we can form some idea of the wealth of clinical material available for study by the medical students of this great institution. In front of the tables in this room is a miniature railway, by which the microscopes can be propelled along the rows of students, so that they can be examined by each one of them without interrupting the lecture or demonstration. I then paid a visit to the ward for contagious diseases, and to the surgical wards of Charité Hospital. The wards were clean and fairly ventilated, but I confess I was not as favorably impressed with them as I expected to be; there was a lack of that exquisite neatness that I have seen in some other hospitals, and some of the wards were much overcrowded. I went to the operating room of the hospital, and witnessed an operation for the removal of a tumor from the right side of the brain of a patient, an in-

mate of the hospital. The operation was performed by Professor Bartleben assisted by Professor Joli. It is scarcely necessary to say that the operation was performed in the masterly manner that might be expected from surgeons of such eminence. The operating room in which the above operation was performed, somewhat disappointed me. It was small in commodius and would not have accommodated more than sixty or seventy students. The operation was performed aseptically and under the influence of chloroform anaesthesia. Sulphuric ether used as an anæsthetic seems to be seldom employed on the continent of Europe at the present time—at least such was my experience during the summer of 1892. One very grave fault in the operation was the allowing of the students and assistants to touch the patient and the surgical instruments used during the operation. This to my mind vitiates entirely the possibility of performing an aseptic operation under such circumstances. The very essence of an aseptic operation presupposes an aseptic patient, operated upon by an aseptic operator with aseptic surroundings. No person or thing should be allowed to touch the patient until after the wound is dressed and thoroughly closed from the air and all risk from contagion. (During my stay in England I saw the very same error committed in three of the larger hospitals in the city of London.) No carbolic spray was used during this operation and in fact during the whole summer I was in Europe I never saw it once used. The many layers of protective gauze, mackintosh, etc., are now replaced by a simple layer of iodoform gauze, with an abundant layer of aseptic cotton, firmly retained by means of bandages. Another remarkable change both among the surgeons of Europe and in this country is the growing disbelief in the efficacy of the ordinary antiseptic solutions that are used as germicides during surgical operations. Solution of carbolic acid has been shown to be a very weak germicide, and the same may be said of solutions of boric acid and of the other solutions commonly used for this purpose. Mercuric chloride has until the present time been our sheet anchor as a germicide. Yet recent investigations in our own country, at the University of Michigan (and published in the *Medical News* of October 1 and 8, 1892) and at the Johns Hopkins University (published in the *Johns Hopkins Hospital Bulletin* of April, 1891, p. 50,) have shown that solutions of mercuric chloride, when used as a germicide, are often inert, and still oftener actually injurious when applied to the tissues during surgical operations. Observation teaches us that the consensus of opinion of the great masters of surgery is fast settling upon the conviction that there are practically only two methods of keeping surgical and all other wounds aseptic. One of these is to keep wounds made during surgical operations as dry as possible (in this way diminishing the growth of bacteria, by eliminating as far as possible the moisture which is essential to their existence). The other method is to use only recently boiled water in contact with them. Every instrument and surgical appliance used must be sterilized immediately before using, either by boiling in water containing 1 per cent. of carbonate of soda, or by being exposed to a dry heat above the temperature of boiling water for at least one-half hour. To this, of course, must be added absolute cleanliness of the operator, the assistants, nurses and of all the appliances used in surgi-

cal operations—the operating room and all the surroundings included. Perhaps I ought not to close this article without some mention of the famous pathological and biological laboratories of Professor Koch which are also located in the grounds adjoining Charité Hospital. These comprise three very unpretentious frame buildings, which contain the bacteriological apparatus microscopes etc., required in the investigations which professor Koch has conducted and still carries on, in his experiments on the preparation of tuberculin and analogous products.

I did not try to see Professor Koch, as I was informed he was so engrossed in his studies that he was very difficult of access. The week before I reached Berlin the highest official in rank of the medical department of British India had come to visit him, bringing with him the highest credentials, and had failed in securing an interview with him. I presume he considers it absolutely impossible for him to see the multitudes of callers who visit him from all parts of the world, and prefers to keep his time sacred from intrusion, so that he can pursue his investigations undisturbed.

In an article of my own, published in the *Medical News* of December 17, 1892, I have given the details of my visit to the Paris hospitals in August, 1892, and at the risk of offending some of my friends I am compelled to say that neither in the hospitals of London or Berlin did I see aseptic surgery carried out with such perfection of detail and magnificence of results as I saw displayed in the hospitals of Paris.

Finally, I would say to American students, that it is entirely unnecessary for those who desire to study the principles of aseptic surgery to go to Europe at all. At the German Hospital, the Roosevelt Hospital, the Polyclinic and others in the City of New York, and at the principal hospitals of Philadelphia, Chicago, Baltimore, Washington, etc., aseptic surgery is taught and practiced as perfectly as it can be found anywhere in the world. If American students desire the culture that only travel can give, by all means let them go to Europe; if they desire boundless wealth of material for clinical study, let them go to London, Vienna or Berlin; but if they desire, besides these advantages, to see fineness of technique in carrying out the principles of aseptic surgery, my advice to them would be to go to Paris and study there. I am very certain they will never regret their choice.

DIURETIN.

Read before the Pathological Section of the Chicago Academy of Sciences, Feb. 9, 1893.

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The experiments of Schroeder reported in 1889, and confirmed by clinical observations made at Schroeder's suggestion, the same year by Gram, of Copenhagen, established the value of the alkaloid theobromine, a product of the seeds of *Theobroma cacao*, as a diuretic of great power, acting by direct stimulation of the renal epithelium and lacking in the unpleasant effects upon the nervous system, tinnitus, restlessness, insomnia and delirium, attributed to its homologue caffeine.

Gram, after trial of many compounds, overcame

the disadvantage of the insolubility of the alkaloid by forming, by combination with salicylate of sodium, a double salt, sodium-theobromine-salicylate, which should contain at least 46.5 per cent. of the theobromine (Knoll's is said to contain 48 per cent.) and to which the name diuretin has been given. The therapeutic as well as commercial value depends upon its richness in theobromine. The compound occurs in the form of a white powder, soluble in less than its own weight of warm water, the solution remaining perfect on cooling. Pure diuretin should burn away without residue and should dissolve readily in soda solution. The daily amount administered—sixty to one hundred and twenty grains—is best given in divided doses of fifteen or twenty grains in solution, pill or capsule. Exposure to the air permits of the absorption of carbonic dioxide, forming an insoluble compound, so that the drug should not be given in powder. With acids or syrups containing the fruit acids the theobromine is precipitated as a white powder. For solutions, therefore, water is the best vehicle, being flavored if thought advisable, to conceal the slightly sickish-bitter taste, with peppermint, wintergreen, or some other aromatic. Usually very little, if any, objection is made by the patient, because of its taste or any unpleasant effects.

Since Gram's paper in January, 1890, numerous observers have reported their experiences with diuretin. Hoffman, Koritschoner, and Kouindji-Pomerantz, published articles the same year, confirming Gram's and Schroder's position as to the remarkable diuretic effect of diuretin and its value in removing dropsical fluids. In Koritschoner's series of thirty-eight cases from the Vienna Hospital, excellent results were obtained in all, save five who came to the hospital practically *in extremis*. The cases successfully treated included dropsies from cardiac and renal diseases, from cirrhosis and cancer of the liver and from tubercular peritonitis. The only unpleasant effects noted were, occasionally vomiting and diarrhœa. Koritschoner, after a dosage of one hundred and fifty grains a day found palpitation and extremely anxious expression of countenance to follow. He produced this result both in a patient and in himself by this dose, which may therefore be looked upon as a maximum daily amount. The removal of the dropsical fluid in some cases was so rapid as to cause alarming collapse. Koritschoner, therefore, advises that the first doses should be small and gradually increased in size until the maximum dose is given, or the desired effect produced. In twenty-three of the thirty-eight cases the effect was most excellent and it could only be said to be a failure in the five before mentioned cases, who entered the hospital beyond all hope of aid. In dropsies due to cardiac disease the result was most brilliant. Not only was no irritating effect produced on the renal epithelium, but in two cases of acute scarlatinal nephritis it caused prompt response in an increased activity of the kidney, and during its administration blood and casts disappeared from the urine.

Hoffmann made careful observations in Erb's clinic at Heidelberg, on seventeen cases of dropsy in which diuretin was given, and found the effect in dropsy of cardiac origin most remarkably satisfactory. In nephritis his results were not uniformly good, the best being obtained in the acute form. In cirrhosis of the liver the result was negative. Hoff-

man calls attention to the fact that the amount of urine passed under the influence of this drug, is in direct proportion to the amount of dropsical fluid present, while the specific gravity decreases with the increase in the amount of urine. It may be mentioned in this connection, that others, as Masius and Kress, have seen the specific gravity of the urine remaining high, owing to the greater amount of solids eliminated, notwithstanding the free diuresis. Contrary to Schroeder and Gram, who regarded diuretin as a purely renal stimulant, he finds as the result of careful watching of the pulse and heart, including the use of the sphygmograph, that under its influence the pulse becomes slower, fuller, stronger and more regular. The only unpleasant effects noted were, in a few cases, slight vomiting and diarrhœa, completely offset by the removal of the dropsical effusion, the improvement in the heart's action, disappearance of bronchial catarrh, dyspnœa and insomnia.

Mme. Kouindji-Pomerantz, as the result of experimental and clinical investigations in the laboratory of Dujardin-Beaumetz, reached the conclusions that diuretin, in daily doses of forty-five to seventy-five grains, is a diuretic of greater power, though less toxicity, than caffeine, with no action upon the nervous system and little effect upon the heart and producing no unpleasant urethral symptoms. It acts by stimulating the renal epithelium and is of great use in dropsies where this epithelium is not so hopelessly damaged as to be out of reach of all drugs. Patients do not become rapidly habituated to the drug. It should be given about three hours after meals to avoid unpleasant gastric symptoms supposed to arise from the action of the gastric juice upon the remedy, when it is taken with the food.

During 1891, reports from various sources, mostly German, appeared confirming, in the majority of instances, the conclusions of the observers of the year previous. Geisler had excellent results in the dropsy of valvular heart disease and in that of acute nephritis, while in myocarditis, chronic nephritis and hepatic cirrhosis the results were negative. Pfeffer in forty cases had good results in cardiac dropsy as well as in chronic nephritis and hepatic cirrhosis. His experience in acute nephritis was not so favorable. In some cases the amount of urine for twenty-four hours was six litres. Both Geisler and Pfeffer regard diuretin as a cardiac tonic and found after its use an increase in blood pressure. Schmieder and Siefert agree with others that the best results are obtained in cardiac dropsy and where there is general circulatory disturbance, though the latter obtained fairly good effects from diuretin in dropsy from portal vein obstruction.

In this country, Dr. Robert H. Babcock, of this city, was one of the first, if not the first, to report on the use of diuretin. He had excellent results, especially in dropsy dependent on valvular heart disease, and was convinced that, as Hoffman early asserted, the remedy has an action upon the heart as well as upon the kidney. Laganà regards diuretin as the very best diuretic known, acting as well in acute as in chronic affections, having no deleterious influence on the kidney and more certain in its effects the more extensive the dropsy. He employed it in dropsy of heart disease, nephritis, hepatic cirrhosis and in acute and chronic pleurisy. Demme obtained good results in children in scarlatinal nephritis and

in cardiac dropsy. Edema in acute nephritis disappears, according to his observation, more rapidly under the influence of this drug than of any other.

Two unfavorable reports were made, one by Chmelnicki from Würzburg, and the other by Nickstaedt from Erlangen. The former found it of small benefit not alone in nephritis and portal vein dropsy, but in valvular diseases of the heart. In cardiac dilatation due to emphysema, however, the good effect was obtained. Nickstaedt by doses of sixty grains per diem produced in the healthy and the sick, malaise, headache, vomiting. He obtained less favorable results than with squills, acetate of potassium or calomel and thinks the use of the drug should be restricted to cases of dropsy where other diuretics fail.

In 1892 several reports have come in, among them an unfavorable one from Hare, of Philadelphia, and a favorable one from Frank of Prague. Hare's report is but preliminary and based on the observation of four cases. His cases are not the ones in which we should expect the most marked effects from the remedy when we consider that it is in cardiac dropsy that its influence is most pronounced and the effect shown on the urine is in proportion to the degree of dropsy. His first case was one of valvular disease with albumen, but no dropsy; no diuresis. Second, valvular disease, moderate œdema, moderate diuresis, which Hare attributes to digitalis rather than to diuretin. Third, general anasarca, albumen, no valvular disease; no increase in amount of urine. Fourth, enlarged prostate, concentrated urine, no œdema; no marked effect, though no accurate measurement of urine was possible.

Frank in von Jaksch's clinic, as the result of experience with thirty-four cases, regards diuretin as a superior diuretic in cases of dropsy and as a heart tonic, though inferior in this latter respect to digitalis. His best results were in cardiac dropsies, though in chronic nephritis, pericarditis, hepatic cirrhosis, he had fairly good results. In one case of chronic nephritis the effect was most remarkable. The patient passed, on the fifth day after taking the remedy, 3750 c.c. instead of 250 c.c. of urine. With this there was improved action of the hypertrophied and laboring heart and a rapid disappearance of the hydrothorax, hydroperitoneum, etc. Diuretin was stopped and digitalis begun and the amount of urine decreased at once. That the improvement in the heart's action was due to the effect of the remedy on the heart and not alone to the disappearance of the dropsical fluid, was proven, because in many of his cases "the pulse was good so long as the diuretin was continued, but became poor when it was stopped." Others have noted the bettering of the heart's action before the disappearance of the œdema, indicating a primary effect of the drug on the heart. In all of Frank's cases where any favorable result was obtained there was a six to fifteen fold increase in the urinary secretion. There was no renal irritation. In two cases albumen disappeared while the drug was being taken.

I desire to submit reports of the following cases:

Case 1.—Mrs. K., forty years of age, resident of Peoria, came under my care in 1891 with marked œdema of lower extremities, abdominal ascites, hydrothorax. The valvular disease of the heart, that was at the bottom of the trouble, had been previously unrecognized and consequently untreated. The heart was hypertrophied and dilated, arrhythmic in its beat and a loud murmur could be plainly heard. This was made out later to be a mitral regurgitant

murmur, it being impossible at first to locate definitely the valvular lesion on account of the tumultuous and irregular action of the heart. Mrs. K. suffered from intense dyspnea and orthopnea. This seemed a favorable case for treatment by rest and digitalis, which were prescribed and in addition, diuretin in fifteen grain doses four times a day was ordered. The effect was seen inside of twelve hours. Urine was passed in large amount every hour, day and night, and the abdominal ascites began to diminish at once. In two weeks all evidences of oedema had disappeared, the pulse was much more regular, and breathing became easy, the patient being able to lie down in bed without a sense of suffocation. Diuretin was discontinued and she returned home with instructions to continue the digitalis. In three weeks I had a letter from her asking for the other medicine (diuretin) as she was now passing a small amount of urine and was again becoming dropsical. Since then I have heard nothing from her.

Case 2.—Mr. K., from Ohio, fifty-two years of age, gives history of acute rheumatism nine years ago and of heart trouble ever since that date. Has taken largely of digitalis, yet during the last six months the heart's action has grown more irregular, dyspnea more annoying and abdominal ascites and oedema of legs have reached an extreme degree. Entered the Presbyterian Hospital November 1, 1892.

Examination showed Mr. K. to be somewhat emaciated, jaundice fairly well marked, abdominal cavity tensely distended with fluid, legs oedematous, fluid in either pleural cavity. Mitral regurgitant murmur very loud, tricuspid systolic murmur, pulsation of jugulars. Urine, 3xi, trace of albumen, casts.

November 3, tr. strophanthi gtt. vii t. i. d. and diuretin gr. xv q. i. d. ordered. Urine was passed in the next forty-eight hours, as Mr. K. said, in "enormous quantities." The first night he did not close his eyes in sleep, as he had to urinate every thirty minutes. The diuretin on November 6, was given in doses of eighty grains per diem. November 8, amount of urine over one gallon. In two weeks there was no oedema of the legs, the waist measure was lessened by nine inches, the heart was more regular and the enlarged liver, firm yet smooth, could be clearly made out extending two inches below the costal arch in the mamillary line. It pulsated synchronously with the heart and seemed to be the liver of passive hyperemia of uncompensated heart disease and to give an explanation of the jaundice. After taking diuretin for three weeks in doses of eighty grains every day, Mr. K. had a slight chill, sudden rise in temperature to 103° F., nausea, though no vomiting. There was no sign of exacerbation of endocardial trouble, the urine showed the same amount of albumen as formerly and a few hyaline casts. The diuretin was stopped and in two days all unpleasant symptoms had disappeared. Twenty-four hours after stopping the diuretin there was a perceptible lessening in the amount of urine voided. After three days rest from the drug, its use was resumed and again the free diuresis began. The patient left the hospital December 1, with the abdominal ascites almost unnoticeable, with no oedema of the legs and with the heart beating with a fair degree of regularity and with good force.

Case 3.—H. C., male, 13 years of age. Had acute rheumatism four years ago and has had several attacks since. Has been treated for heart disease during these four years. Late in November 1892, I was called to see him and found a little oedema of the legs and a considerable amount of fluid in the abdomen. There was a loud mitral murmur, the heart was hypertrophied, liver enlarged; occasional vomiting. He now began to fill up with fluid quite rapidly and in a week his trouser's band failed by three inches to encircle the waist. He had to sit up in a chair one night in order to breathe easily. While continuing the capsule of digitalis, spartein and nux vomica he had been taking, he also took now, ten grains of diuretin three times a day. He noticed the next day the increase in the amount of urine passed and in the frequency of micturition; he had to rise four or five times at night. In a week he was able to button his trousers and felt so well that he went to the theatre. After the ascites had disappeared the diuretin was stopped. In about ten days there was a reaccumulation of the fluid, which promptly disappeared a second time under the influence of diuretin. I had this patient buy the drug by the ounce, the druggist putting up a sample ten grain powder, the dose equivalent to the sample powder being measured out and taken in water. For about three days he took forty grains of diuretin daily, but as no perceptible benefit was apparent I dropped back to thirty grains. No unpleasant symptoms showed themselves during the exhibition of the drug.

Case 4.—Mr. B., 55 years of age, from Indiana. Came to Presbyterian Hospital Oct. 8, 1892, with typical history of alcoholic hepatic cirrhosis of some four years standing. Excessive ascites. Never had been tapped and desired to have fluid removed by drugs rather than by operation. He was given salt every A.M. when necessary, and thirty grains of diuretin daily. Urine, before giving the drug was twelve to twenty ounces daily, after taking diuretin twenty to thirty ounces were passed. The daily dose was increased to 60 grs., without perceptible improvement. Dyspnea became so marked that I aspirated the abdomen October 28th, no bad effect following. October 30, diuretin was given in eighty grain doses. Nov. 2, there occurred a chill, temperature 103° F., pulse 128, vomiting and purging. I stopped the diuretin and in twenty-four hours all these unpleasant symptoms had disappeared. November 11, diuretin was resumed in forty grain doses, and on the 13th, in sixty grain doses. At 8 P.M. on this day the patient had a chill, nausea, diarrhoea, and rapid pulse as before. There appeared also in the left groin a purpuric lesion with a wide erythematous border, that extended half way to the knee and was somewhat tender. The diuretin was at once stopped, a wet boric acid dressing applied over the thigh and in two days the patient was about as before. The skin lesion, save the purpuric stain, promptly disappeared. I aspirated a second time November 18. He left for home November 30, in about the same condition as upon his entrance. I heard from him one month later; he had been tapped twice since leaving the hospital but had had no febrile attacks.

In a case of acute scarlatinal nephritis in a child of 11, the urine under thirty grains of diuretin a day has increased from eight ounces to thirty-one and the albumen has decreased from 50 per cent., by volume, to about 2 per cent. The case has only been under treatment for the nephritis for five days but at this writing the diuretin appears to be acting favorably.

It will be seen that in the case of cirrhosis of the liver the result was unsatisfactory, for though there was a slight increase in the amount of urine, no diminution in the dropsical fluid was perceptible. In the three cases of dropsy due to valvular heart disease the effect was eminently satisfactory, there following promptly, increased amount of urine, rapid diminution of dropsical fluid, strengthening of the heart's action with slowing and regulating of its rapid and irregular beat, improvement in appetite and disappearance of dyspnea and cyanosis.

In these cases I administered at the same time a cardiac tonic, strophanthus in case 2, and digitalis in the others. In case 1, a part of the improvement can, perhaps, justly be attributed to the digitalis, as this remedy had never before been administered; but the free diuresis and rapid disappearance of dropsy were far beyond anything I have ever seen from ten drops of the tincture of digitalis three times a day, and after stopping the diuretin fluid rapidly reappeared in the abdomen. In cases 2 and 3, digitalis and various other heart tonics had been taken almost constantly, in the one case for nine years and in the other for four. In the latter case, in fact, I had the patient continue with exactly the same capsule (pulv. digitalis, spartein sulph., ext. nuc vom., etc.), he had been taking for many weeks and during the taking of which, the fluid had accumulated in the abdomen. In all three of these cases, too, the diuretin was stopped and within forty-eight hours there was a diminution in the amount of urine and in cases 1 and 3, a reaccumulation of dropsical fluid. Return to diuretin produced the same favorable consequence as at first. The effect of the diuretin cannot, therefore, be questioned. It has seemed to me an advantageous method of administering the drug to combine it, in these heart cases especially,

with digitalis or some other heart tonic. In my cases in this way, a moderate dose of sixty grains a day produced all the results that could be asked. I find that Frank regards this as an excellent method, and Demme, in the case of a child, gave first digitalis and then diuretin after the effect of the former drug on the heart was manifest. The unfavorable consequences, vomiting, slight chill and fever and diarrhœa, disappeared promptly on stopping the remedy. These effects were possibly cumulative, the drug having been administered in the one case for three weeks and in the other for eight days, in either case in increasing doses. Cumulative effect is not noted by other observers and it may be that the effects noted by me are no more than the vomiting, diarrhœa, etc., spoken of by others. The skin lesion which appeared in case 4, is different from anything I have seen noticed. Its occurrence at the time of administration of the maximum dose for this patient, as evidenced by the gastro-intestinal symptoms and its rapid disappearance upon stopping the drug, lead me to regard it as due to the remedy and not solely accidental. Demme, in a ten years old child with amyloid disease of the liver, spleen and kidney, produced by diuretin a rash resembling that of measles. Ninety grains were given in the course of four days. Profuse diarrhœa occurred at the same time the rash appeared. I find no other record of skin lesion due to the ingestion of the drug.

Since writing this article I have had kindly placed at my disposal by Dr. A. E. Halstead of this city, the notes of four cases occurring in his practice, in which diuretin was employed. An abstract of these notes is here appended.

Case 1.—Mrs. E. G., mitral regurgitation; chronic parenchymatous nephritis with acute exacerbation. Total urine for 24 hours 3v ; vomiting, twitches, slight coma. Given calomel gr. $\frac{1}{4}$, and diuretin gr. x, every two hours, and in addition a hot bath. Gradual improvement. At end of one week, urine 3xxiv daily, no vomiting, mind clear.

Case 2.—J. G., mitral stenosis and regurgitation, chronic nephritis. General anasæra, severe dyspnoea; amount of urine secreted in 24 hours, 3xv . Treatment, magnesium sulphate, 3ss , A.M. and P.M. tr. digitalis mx., t.i. d., and diuretin gr. x, every four hours. On the second day urine 3xl . At end of week 3exx . At end of two weeks entire disappearance of œdema, dyspnoea, etc.

Case 3.—A. H., aged 83. Diagnosis. Arterio-capillary fibrosis; contracted kidney, secondary mitral insufficiency. General anasæra, ascites, hydrothorax. Under diuretin, pulse harder, dyspnoea greater, headache and vertigo marked. Diuretin discontinued and jalap, cream of tartar, and later, nitro-glycerin substituted. Under latter treatment amelioration of all unpleasant symptoms.

Case 4.—Miss M., age 17. Chronic nephritis with acute exacerbation; uræmic prodromes marked. Urine 3viii . Given digitalis, diuretin and calomel. Urine at end of two weeks 3L .

In these cases of Dr. Halstead's, it will be noticed that a favorable result was obtained in three, while in the case of capillary fibrosis there seemed to be an increase of blood pressure and exacerbation of all the unpleasant features of the disease. The most marked result, in case 2, was in a patient suffering from valvular disease with excessive dropsical transudation, apparently the kind of case in which we are to expect the best effects. While all the benefit derived in these cases cannot be ascribed to diuretin, for other remedies were freely combined with it, Dr. Halstead assures me that from his observation of the cases diuretin deserves the great share of the credit.

That diuretin properly employed, is a remedial

agent of great value, must I think, be admitted by all. While the exact pathological conditions that call for its exhibition cannot as yet be specifically stated and disappointing failures will therefore attend its misapplied use in many cases where too much will be hoped for, yet, a study and comparison of the results of the various observers who have employed this remedy in the past three years, yield facts from which certain conclusions can be drawn.

My study of the literature of diuretin, and experience with the remedy seem to warrant the following deductions:

1. Diuretin is a diuretic acting by direct stimulation of the renal epithelium and best suited to cases in which there is general dropsical effusion.

2. It is the best medicinal remedy for removing dropsical fluid due to valvular disease of the heart, after digitalis and pure cardiac tonics have failed.

3. It can be advantageously combined with digitalis and pure cardiac tonics.

4. It probably has a direct effect upon the heart as well as upon the kidney, slowing and strengthening its action and improving its rhythm. (This is disputed by some; viz.: Cohnstein, *Ueber den Einfluss der Theobromine, etc., auf den arteriellen Blutdruck*. Inaug-Diss., Berlin, 1892).

5. Diuretin has oftentimes a beneficial effect in other circulatory diseases with dropsy, as myocarditis, pericarditis, aneurism, arterio-sclerosis. Its action is here more uncertain than in valvular disease.

6. In the dropsy of nephritis it can be used without danger of irritating the kidney, the effects in acute nephritis being more certain than in chronic nephritis. Where the renal epithelium has undergone too extensive degeneration, the drug may fail to act.

7. In the dropsy of portal obstruction, and especially of cirrhosis of the liver, it usually fails to give good results.

8. It occasionally causes nausea, vomiting, diarrhœa, palpitation, headache and slight fever; rarely, skin eruptions follow its use.

9. The maximum daily amount that can be given with safety is 150 grains; the average daily amount is 50 to 120 grains, given in divided doses. When combined, in heart cases, with cardiac tonics, smaller doses of diuretin can be employed.

10. It should be given in solution in water or milk, or in pill or capsule, without acids and by preference between meals.

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TWENTY-THREE States, one territory, and the Cherokee and Choctaw nations are protected against quackery by medical examining boards.

ADDRESS ON DIETETICS—MEDICAL FOOD ETHICS NOW AND TO COME.

1. Read before the Section of Physiology and Dietetics of the American Medical Association, at its Forty-third Annual Meeting held at Detroit, Mich., June, 1892.

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(Concluded from page 244.)

Take La Grippe.—My patients who are on the strict diet of beef and hot water rarely take it, and if they do, have mild attacks. So when patients do have it they should be fed especially for the severe and almost inexplicable prostration. Oat meal is one of the things to help the grip along, but not the patient. In the same category come the starches and sugars in excess, fruits, all vegetable foods, especially when they have been long kept and are not fresh. The best material for cough drops I ever used was beef. I am prepared to hear my learned and skilful laryngological friends say, "Well, this is cranky and new to us, and not to be entertained." I would like to know why we are meeting here in Detroit if not to find out what each one knows? I have sought for others to tell these things but they do not. I think this testimony ought to be known, and if it has come out through such a poor witness as me, please forget all about him, but remember the testimony and defeat it by practical tests, not by opinions unbased on facts!

Otology.—What more frequent cause of deafness than closure of the normally open Eustachian tubes by thickening from catarrh of the post-pharyngeal space, especially by the thickening of the posterior pillars of the palate near the tube. And yet bad food has everything to do with this abnormal thickening. Indeed, nearly all ear diseases have been laid to bad diet by an observer, and I think he is correct in the main, correct enough to wake up otologists to a more lively course of food ethics. One thing is certain, that oatmeal does not enter the diet list of cases of deafness, as it causes fibroid thickening.

Section of Diseases of Children.—Children are the fruit of man. Potatoes are the fruit of the solanum tuberosum. Who raises the largest and best crop of potatoes? He who gets the best seed, proper manures (soluble mineral food), cultivates and opens the soil so that air can circulate in it, and removes weeds which cut off the food which the crop should have. Nature does her part with rain and sun. Who gets diseased potatoes? He who does not feed well nor care properly for his crop. Other things being equal, the very weakness of the crop makes it a prey to parasites. The principle has been established that good fine fruit of man or vegetables can not be obtained without normal feeding. What a revelation would happen if this Section could enforce proper food in motherhood!

But we must take things as we find them. What is the best way to treat diseases of sucklings? One is, to feed mothers two-thirds animal and one-third vegetable food, and thus ensure a good supply of breast milk; this would sweep away a majority of the diseases incident to dentition, cholera infantum, tuberculosis, stunted growths, etc. To change the conventional ethics of infant feeding needs the active, persistent and interested help of all in this Section. One reason of the resistance is that those who have personal acquaintance with food, at least three times every day of their lives, consider that they know

more than the doctors about it, and will not believe wholly what is said.

Section of Oral and Dental Surgery.—I have often seen the decay of teeth arrested in my patients when they obtained the proper amount of mineral food in their diet, so that I have no hesitation in saying to the Fellows of this important Section, one of whom discovered etherization, who have honored our age by the marvellous skill of their dental appliances. Perhaps it may not be out of the way for me to say that the fearful condition of the teeth of my own family roused my attention to the subject of food and I found, as I believe, the trouble to be with common flour at that time (1872), having only one-fourth of the mineral food it ought to have. I am thankful to say that the flour millers have improved the products so that the proportion is nearly doubled if I remember rightly. A large manufacturer of flour, a patient, told me that the miller would make any kind of flour that the public wanted. I was glad to know this. I wish to say also that dentists everywhere have been outspoken and zealous advocates of better feeding. Our associates, such as Dr. J. M. Williams, and G. B. Harriman of Boston, W. E. Dunn of New York, the Maryland and District of Columbia Dental Association, to name no more, have committed themselves to the good cause of better food ethics in dentistry. It is then unnecessary to charge this Section in relation to this matter. They will attend to it perhaps better than any other. The Section of American dentists leads the world. This Association is to be congratulated on the full representation with us of this Section, for I know it will strengthen us in our food ethics.

Neurology and Medical Jurisprudence.—In a paper read to the Association in 1888, I tried to point out the close connection of food with the neuroses. Whether I did so or not, the effort justifies me in connecting food with this Section. I will cite but a few other examples. Take fatty degeneration in the head producing paralysis, apoplexy, aphasia, etc. Take male neurasthenia, due in my opinion to a catarrh of the genital tract, it is a food disease and a cause of insanity and mainly curable by good feeding in severe cases. Constipation is in my opinion a neurosis because the nerve forces controlling digestion are partially paralyzed by the gases arising from bad feeding. Neuralgia and headaches are neurological lesions often due to bad feeding. The Section of neurology would do well to pay more attention to the subject of food as a cause and cure. Indeed, till it does, the present prevalence of neuroses in my opinion will continue. I think it a great mistake to deal with results and not the causes of disease, and if the medical food ethics to come include the prevention of fatty degeneration and genital catarrhs for two things—a blessed consummation will be accomplished.

Jurisprudence.—Probably no more important matter of medical jurisprudence has come before our country than the Paddock Food and Drug bill now passed the Senate and waiting in the House. Should it pass it must be sustained by public sentiment and this should be fostered by this Section. The rights of physicians and patients are recklessly violated by frauds in foods and drugs. [N.B.—The Paddock Pure Food and Drug Bill passed the U. S. Senate, and was endorsed by the Section. It was not endorsed by the Association, as Secretary Atkinson affirmed that

"we do not know enough about it to vote." Is it possible that senators know more about *pure drugs and foods* than the largest representative medical body in the world?]

It has been said that those who feed largely on baked beans and other indigestibles are litigious and quarrelsome; I once saw a judge decree a divorce in a minute or two on the unsupported evidence of physical violence given by the wife who sought the divorce and who was the only witness. It might have been all right but I think the judge wanted to get his dinner as almost every one had done so! After his dinner he would have been less hasty. I took the ground that food, nervousness and divorce were related as cause and effect. I still think that if one hundred married couples were fed so as to prevent nervousness, and if another set of one hundred were fed so as to be nervous, *i.e.*, on sweetmeats, pies, cake, ice-cream, cream of tartar biscuit, white flour bread, asparagus, apples, etc., that the number of divorces would be greater in the latter set than the first. I would also add that more suits for mal-practice would be found in the latter than in the former set, more insanity, to name no more. The subject of food ethics is one of the most important of all that come before this Section in my opinion.

Dermatology and Syphilography.—The skin is the largest gland in the whole body. Many diseases of the skin are now simply classed under inflammation from special and general causes. The germ diseases find a fruitful field on the skin, *i.e.*, great and small-pox, measles, scarlet fever, eczema; even in consumption, we find the epithelia of the skin invaded with the germs of these diseases in bad cases. Now as in the vegetable kingdom, the parasites flourish on those specimens which are debilitated by bad feeding, the same idea is voiced when it is said that one does not have skin diseases badly because of good constitution; but the good constitution came through good feeding! I know a man of my age who has spread it all his life in liquor and vice and yet his wonderful constitution has resisted syphilis which could not be found in the blood. My father knew a nurse who cared for cases of small-pox in the war of 1812; this nurse had been known to sleep in a bed all night, just after a soldier dead from small-pox had been removed, with no change of bed clothes! He did not have the disease till he became an old man and then, when acting as a nurse during an epidemic, contracted it and died. Food figures in the causes of skin diseases, for example, lobster and clams in urticaria in some; salt food in scurvy; so I think it will not be denied that food ethics ought to have a great deal to do with this section in time to come.

Materia Medica and Pharmacy.—The lively interest as to foods which we see at the present day in all stores of druggists, and the great predominance of food stuffs in the exhibits of our Association to-day, palpably and incontestibly prove that food ethics is an intensely alive subject with those of this Section. If I have said anything against pharmacists offering so much instruction as to foods and seemingly to charge them with slopping over it may be said, as lately in New York, "those that do not slop over have not enough to slop over." Now that we have this Section in our body on equal footing with the other sections, I think I may say as I was an advocate of this exaltation of pharmacy into equal broth-

erhood here—that I am willing to have the profession instructed by the members of this Section; not only willing but anxious. But I am not willing that all the responsibility of medical food ethics should slip away from the other Sections, nor am I willing to be dictated to by those whose only object is to sell a food which they alone make and which does not come up to the standards even of their own circulars. I think this Section should control the admission of food advertisements in our Association JOURNAL. I am disgusted to see some ads. which are sailing under false colors.

Section of the Practice of Medicine.—Here food is paramount, so much so, that it seems needless to discuss food ethics. If physicians are for the purpose of curing disease, they must remove causes predisposing and exciting. I do not like very much to make any comparisons between others practice and my own; nor am I disposed to shield my own imperfections. Mr. Lawson Tait said in the Section of Surgery of the British Medical Association, 1889, when my paper on "Galvanism of Uterine Fibroids" was up, that I was bold to put my deaths first; I said I wanted to tell the truth, no matter about myself. So here if my testimony favors myself, I ought not to withhold it, as we are after the curing of our patients more than anything else. I am intensely interested in diseases of the heart. I found a physician who was curing cases of hypertrophy, angina pectoris and even with valvular lesions. I found I could treat likewise. It is far more satisfactory to cure these cases than to have them die, especially when they are in your own family, as when your own father and mother have died from heart failure caused by organic and functional disease. Such is my case.

Lately a lady came to me—34 years old, married, no children, quite fleshy. She had been sick with a bad cough which resisted treatment; heart enlarged and tumultuous in action. She had been treated as a case of consumption, so regarded if not expressed. I found the following: 1. The blood did not have the morphology of consumption. 2. Crepitant râles rather coarse at base of both lungs behind; no dullness on percussion. 3. Heart's impulse felt and sounds heard from beneath the left axilla to front of sternum; no valvular lesion. Impulse heavy; dullness marked over and beyond the normal precordial limits. 4. Urine highly albuminous. No casts nor fatty epithelia. 5. Uterus anteverted and anteflexed: cavity three and a half inches; hyperæsthesia. This case was put on broiled beefsteak with hot water one hour before meals; no tea or coffee and no vegetable food; relishes, pepper, butter and salt. Iodoform applied to uterus. At once she could sleep all night; heart did not trouble her; cough gone; albumen almost disappeared. She took cold afterwards in her bowels by exposure to an east wind; had return of albuminuria; pain and colic in abdomen; treatment still kept up with the effect of almost complete disappearance of albumen; uterus reduced to normal size; heart quiet, and less external impulse; sleep good; spirits returned; twenty-six pounds lost of flesh. Now, as she is obedient. I think it will not be long ere she is well. [N.B.—She was disobedient, and died later.]

I put it to you, was it not better thus to treat this patient by food as a basis than to treat her as she had been treated? No doubt I could not have done any better had I not been so intensely interested in

such cases, and been permitted to learn that it was better to strengthen a big, fat weak heart and remove the fatty degeneration by food than to let it keep on saddled with bad feeding and no relief?⁹

Consumption.—Probably without knowing it, the practice of medicine includes food treatment. If air is food, then what means the fashionable change of climate to Florida and elsewhere for consumption. I do not believe that bad air causes consumption unless the patient is very much reduced by bad feeding (diet again). I have inhaled, and others have inhaled, millions of the bacillus of Koch with impunity. It has been proved that consumption is not communicable to animals in perfect health from normal feeding. Dr. L. A. Sayre, when a young man collated some forty cases of consumption cured by forced inhalation of air. I have known cases where expansion of the chest by singing cured consumption. Mr. William Ludden, of Brooklyn, (Ludden, Bates & Co., Savannah), has told me of such cases. Rev. Peter Kimball, of Perth, Amboy, who will be one hundred years old if he lives to March, 3, 1893, has played the fife with special view to protection from consumption of the lungs. I myself now think that if I had not taken the air food treatment by marrying my music teacher and always participating in good home vocal music, I would have had consumption of the lungs following consumption of the bowels. The full expansion of the chest with fresh air I believe will prevent the deposition of tubercle sometimes. Music is a medicine.

At the tenth International Medical Congress, 1890, Berlin, I reported one hundred cases of consumption treated by food, of which forty were permanent arrests and most of them of ten years' standing; some longer. I should not have presented them were it not that I believed I was doing my duty to hand in such a contribution as I had from my own experience; I must say that only the head of my paper was published, the body, arms and legs were left out with the electrotypes appended; I was sorry but an invitation to court at Potsdam was a solace, though I think the Germans in my case manifested not the same regard to a correct presentation of medical subjects as there was manifest in the Ninth Congress at Washington. These one hundred cases do not comprise all that I have had under my care; I took the histories of the seventy cases I published in the transactions of our Association in 1880, and brought their histories down to date as far as I was able, adding thirty cases; there are perhaps one hundred more cases, but their histories are too recent; Koch cured reported consumption in a few weeks; I did not care to publish mine till a reasonable time had elapsed; these one hundred cases have been tabulated and are presented with this address.

A wedding in place of a funeral.—A young woman of eighteen was pronounced incurable in consumption. There was no mistake in the diagnosis, as there were lung fibres in her sputa, signs of cavity in the right upper third front chest; blood had the morphology of consumption. She also had uterine disease. Never did a patient do better on the diet for consumption, and uterine disease treatment; she recovered, and when Christmas evening, 1889, came, in about eighteen months, she was married under an arch of botanic specimens to the happy man of her choice;

her first child weighed fifteen pounds (so I was informed by the grandmother) and died at birth; a second child of about two months now blesses her home thus made happy by a wedding in place of a funeral, which would have been impossible but for the medical food ethics I adopt in the practice of medicine. I think these facts are enough to prove that the Section of the Practice of Medicine has everything to do with food.

I want these facts tested, not with opinions not based on facts, but with facts procured in a like way and fairly treated. This will be, I hope, ere the most of us have passed on from these earthly scenes. For some of us the time is short. It behooves us to do what we can now and not waste our energies in combatting opinions not based on facts. It is better to treat causes than results, as Dr. Koch does. So long as any member of the medical profession acts according to the rules of polite society just so long is he entitled to a fair hearing. If he has said the truth it will live: truth is immortal and deathless. No faults of character can undo the truth of physiological or pathological experiments with food and the treatment of diseases. Good work done will prevail in the end when those who have refused it are all forgotten, even if they were millionaires and controlled the medical food ethics of the present day.

The way to do is to test by feeding; I hope that the Section of Practice will not forget its relations to medical food ethics; if it does not forget, in place of a few weddings, there will be tens of thousands to the great honor and glory of our whole profession.

Gentlemen:—In what I have said to the other Sections, I have been trying to impress you with the length and breadth, the height and depth of our own Section. If I have convinced you of the importance of food to the other Sections I beg to assure you of its greater moment to you, and to somewhat take in its far reaching scope. Remove all the other Sections, and you could sustain the work of medicine better than it is now sustained. If the other Sections refuse to consider the subject of food ethics there is more reason for you to take it up and thus help them even when they will not help themselves. I charge you to enter with zeal and vigor on this grand work; let there not be so few to work on so momentous a subject; come and use the Archimedian lever of food ethics to pry up the medical profession to a higher plane of usefulness and honor. Our President, Dr. Marcy, says that the American Medical Association represents the largest body of medical men in the world, that its constituency is greater than that of the British Medical Association; if so, to what a high honor and responsibility you are called! Do not fail to do your duty; if you will lead I will follow: if you will not lead, let some one else! This work must be done. It will be done by others outside, if not by us inside of the profession. Public opinion will compel this work to be done as it did compel the retirement of venesection (to its harm, in my opinion). Food plans which contain much of merit are being promulgated by non-medical women, and reach the laity and do good where I cannot reach. If one, and you may be that one, has an enlarged and fatty heart caused by bad feeding, are you going to throw away the chances of recovery by good feeding, because the medical profession has not endorsed in toto the principles involved in such treatment?

⁹ Phys. cases heart dis., Tenth Int. Med. Con. Jour. Am. Med. Assoc., Aug. 22, 1891

There is work enough for this Section to do for many years; I hope it will be harmonious, and industrious; medical societies beyond the seas will coöperate, I am sure. If America is the food store-house for the world, let it disseminate true principles of medical food ethics as well. It seems to me that a good plan of work would be to take up the dietetics of the Sections, beginning with the Practice of Medicine. Of course, while there is a main object anything germane could come in as side dishes if any had them to offer, besides there might be something of general medical interest, as the pure food and drug bill this year. [N. B.—The present disappearance of the Section of Physiology and Dietetics from the list of Sections, as advertised, is much against the wish of the Secretary, on the ground that it has more work to do than any other, and hence the greatest reason for existence.]

PERSONAL WORK.

Let every member of this Association personally encourage all efforts at improvement of Food Ethics by diet kitchens, cooking schools, all restaurants like Smith & McNell's, New York, where 8,000 meals are daily served from plenty of good food, well prepared and at moderate prices; all steamboats like the Fall River Line, one of whose stewards serves the best porter-house steaks I have ever eaten; all ocean steamships whose cuisine is excellent, as found on the Etruria; such railroad restaurants as found in the Pennsylvania depot in Philadelphia, all places where good coffee is served, etc.; on the contrary, let every member condemn poor cooking, as poor coffee, poor steaks, bad bread, impure drinking water, all places of public entertainment where the service consists mainly of high prices, spotless and brilliant table ware, servants dressed as if to be presented to court (not but that these things are as good as far as they go) but with poor food which does not nourish the body.

Let members when travelling in Europe, when told as I was that I must not drink the water, remember the dictum of Dr. S. W. Abbott, Secretary of the Massachusetts State Board of Health, "that the European hydrant water, as a rule, is better than ours and better managed." Let them not bow down and worship with colic and diarrhœa the menus of the table d'hôte, when a meal of beef, bread and coffee taken (as wife and I took it in Paris) at the children and nurses' table, will nourish the body sufficiently in health. In fact, let every member do all he or she can to protect themselves and others from the evils of conventional feeding, which now carry off most of mankind to untimely graves, and this work, added to coöperative labors in other Sections cannot but redound to the honor and glory of God, who made our bodies to be living temples of the Holy Ghost, and says, "if any man defile the temple of God, them shall God destroy, for the temple of God is holy, which temple ye are." The destruction from defilement is automatic because the laws of nature make it so, just as water drowns, cold freezes and fire burns. If there were less physiological sinning I think there would be less sin of all other kinds.

I herewith append two tables of cases treated more or less by food. Table 1, of consumption of the lungs; table 2, of cases of tumor and so-called cancer.

All of these cases were more or less closely on a beef diet, *i. e.*, beef steak, roast beef, chopped beef.

Not all of them were under the absolute diet.

I may be permitted to give the following conclusions:

1. The graver a case of chronic disease, the better has it done on a diet of beef chopped and broiled as per directions appended.

2. This has occurred so often that I am forced by the sheer logic of facts to aim to use beef as much as possible.

3. I consider the idea of uræmia and the formation of stone in the pelvis of kidneys by the absolute beef diet a bug-a-boo; some and many of my cases I examine the urine of daily; I have never seen uræmia occur from a diet of beef alone and I have seen restored to health cases of full-fledged Bright's disease sent me by other physicians by the absolute beef diet covering a period of six or more months.

4. The same may be said of chronic rheumatism; it is not right to lay upon beef the sins produced by eating foods that undergo alcoholic and vinegary fermentation.

5. So long as I test the condition of my patients by morphological examinations of blood, sputum (if any), feces, urine, and the chemistry of the urine, and feed beef or other foods alone, or in any combination desired according as these methods of inspection and analysis reveal the status of the patient to be, I consider that I am not erring in my therapeutics.

6. But if I base my food therapy upon the opinions of manufacturers, pharmacists and clinicians who do not use the tests noted under 5, I consider that I am much more liable to mistake.

7. Those cases *needing an absolute diet of beef* will do better if fed on beef of animals about four years old, not over-driven before death and fattened on good food; take from the top of the middle of the round meat of such; cut into cubes of small pieces; run through the Enterprise chopper three times, each time cleaning from the plate at the distal end of the machine the white fibrous tissue; the meat should not be handled direct but with wooden spoon; should be moulded in cakes about one inch thick, and as many inches in diameter as needed; broil over or under bed of good live coals; charcoal best; gas good; kerosene stove may be used; the perforated broiler now in use will be found especially convenient. Season with pepper, salt, butter as desired; such beef when rightly prepared is exceedingly palatable; the cake presents outside a dark brown color and inside reddish but not raw appearance. Patients who have lived steadily on this beef, and thus prepared, have preferred it to turkey, chicken and other meats: such is simple history. Any one who will not take the care to buy good beef, and see that it is rightly prepared, must not condemn it as a form of food.

ONE HUNDRED CASES OF CONSUMPTION OF THE LUNGS TREATED IN GENERAL PRACTICE, MANY OF THEM TWENTY YEARS AGO, NOT COMPRISING CASES IN LATE YEARS, WITH FEW EXCEPTIONS.

SERIES I.—NON-ARRESTS—TWENTY-ONE CASES.

A.—Cases that were not improved—nine in number.

1. *Illustrative.*—(See Transactions American Medical Association, 1880, pp. 333-408, case 7). August 28, 1877. M. H. S., fisherman, Lanesville, Cape Ann, Mass., aged 33 years. Father died of phthisis. Mother living; been sick two months. He states that he took cold, and then went fishing. Was exposed, and took more cold; except two attacks of typhoid fever, was perfectly well before. General appearance bad; cough is constant and severe; no hæmoptyses; no dyspnoea except on going up stairs; severe pain in shoulders; appetite poor; bowels regular. Has lost flesh and strength; night sweats copious; pulse weak; hands shake badly.

Physical Signs.—Dullness on percussion and crackling over right upper third front and lower third back; feeble inspiration, almost flat on percussion; no crackling, but the respiratory murmur was heard

underneath. Inspection of the blood revealed spores and spore collect in abundance. Fibrin filaments thickened. Red corpuscles adhesive, sticky, irregularly massed; pale in color. Mr. S. went upon treatment with quinine for medicine. It was his intention to come up from the case again, but he was unable to do so, and despite the means used, he died not long after.

Remarks.—At the time it did not seem to the writer that the case was hopeless. Still, his history teaches that one must not trust too much to first appearances. It is a disadvantage to see a patient only once. It was reported that he faithfully used the diet. It is well, however, to compare the case with some of the very sick ones that were cured as noted in series 3. The lesson taught is, simply, the physician should never refuse to take a case, and should not be too free with promises of recovery.

No. Date, Sex. Age. Publication.	Condition when Placed on Treatment.	Remarks.
2. Man, middle-aged. Case 2, loc. cit.	Father of Case 43; not so much disease as in son . . .	Death in a few weeks.
3. Woman, 35. Case 4, loc. cit.	Advanced disease; three years' standing	Digestion improved; diet relished, but of no avail; died in a few weeks.
4. 1873. Boy, 19. Case 8, loc. cit.	Acute tuberculosis and peritonitis. Blood morphology of tuberculosis	Treatment of no avail; diagnosis confirmed by post-mortem.
5. 1873. Woman, 55. Case 15, loc. cit.	Aphonia; larynx infiltrated and inflamed; vocal cords swollen, ash colored and stiff; tuberculous blood morphology; chest emaciated, flattened; coarse and fine rales and cavernous respiration at apices.	Symptoms relieved; death in nine months.
6. 1889. Girl, 22. Unpublished.	Tuberculous blood; crackling through right lung, front and back, and upper third left lung; asthma; diarrhoea; night sweat; copious expectoration; lung fibre in sputum . . .	Slight amelioration of symptoms. Death in two months.
7. 1887. Man, 22. Unpublished.	Tuberculous blood; much disease in lungs	Plans followed out faithfully. Death.
8. 1886. Girl, Unpublished.	Tuberculous blood	Treatment carried out faithfully. Of no avail.
9. Woman, Unpublished.	Tuberculous blood; cavity in apex of each lung . . .	Had uterine disease which she would not have treated; retarded case; death.

Cases that were on partial diet; had bad surroundings, financial, climatic, etc.—twelve in number.

10. *Illustrative.*—(See Case 1, loc. cit.)—Widow, aged 43 years; small sized, thin, anxious and nervous. Asthmatic complication; old abscesses of the mediastinum; diarrhoea; dyspepsia; sleeplessness; severe cough; dullness on percussion, with constant crepitant rales over both upper thirds front. Great dyspnoea at times. Abnormal valvular sounds of the heart. No albumen in urine. Altogether the most distressed and suffering case of consumption I had seen for some time. The effect of the animal diet, bath of mineral acids, and quinine, was to relieve, in a measure, the night sweats and abdominal pain. But the appetite turned against the animal food, and it would often be rejected by vomiting. She was obliged then to carry out the regime only partially, particularly as she laid all her bad feelings, distresses and sickness to her food or medicine, and never to her disease. She suffered also greatly from prolapsus of the uterus, aggravated by the severe coughing. This case was not relieved by the special treatment recommended. The weakness of mind and body, induced by the presence of organic disease in the thoracic and abdominal viscera, was too great to be reached by perhaps any treatment. Indeed, just here it may be stated that no pretension is made toward cure of any but one-third of the cases; but to insure that proportion it is necessary to have the treatment strictly carried out.

The present case was one in which there was really no hope, and only adopted as "a drowning man catches at a straw." It is thought best here to give simply the bad and good cases together, and let the reader judge for himself of the value of the data thus derived.

No. Date, Sex. Age. Publication.	Condition when Placed on Treatment.	Remarks.
11. 1879. Dr., 72. Case 3, loc. cit.	Tuberculosis, as diagnosed by Dr. H. I. Bowditch	Partial treatment; was improved; death in three months.
12. Man, 40. Case 5, loc. cit.	Grave general symptoms. Local disease in lungs not so well marked	Followed up treatment faithfully; death in few months.
13. Woman, Case 6, loc. cit.	Advanced tuberculosis of both lungs; great weakness, prostration and impaired morale	Followed up treatment faithfully; died in a few weeks.
14. 1887. Woman, 34. Case 9, loc. cit.	Acute tuberculosis in the puerperal state; hæmoptyses before and after labor; disease in upper third right lung; blood morphology tuberculous; patient poor, and house damp and dark	Died in two weeks. Life perhaps might have been saved if there had been a sanitarium to treat her case in.

No. Date, Sex. Age. Publication.	Condition when Placed on Treatment.	Remarks.
15. April, 1877. Case 10, loc. cit.	Undersized, pale, thin, feeble, downcast; cough; copious expectoration; loss of flesh and strength; blood tuberculous; diet had been mainly flour, potatoes and tea	Did not follow up treatment closely; was improved, but died in October, 1877.
16. 1877. Dr., 37. Case 11, loc. cit.	Tuberculous blood; disease right upper third front and back; throat inflamed throughout	Throat treated with solution liq. per sulphate iron and glycerine, equal parts. Lived on New England rum and cream; some improvement and then gradual increase of disease, and death in three months. The blood was not improved by this dietary.
17. 1873. Woman, Case 12, loc. cit.	Early stages of disease; throat inflamed	Had bad surroundings as to finances, and did not follow out treatment; retrograded and died.
18. 1874. Girl, daughter case 17. Loc. cit., case 13.	Tuberculous blood; disease started in lungs	Not seen again; ordered on diet which was not followed out. Death in six months.
19. 1876. Irish woman, Case 14, loc. cit.	Tuberculous blood; disease in right lung	Treatment not followed out. Death.
20. 1875. Man, Case 16, loc. cit.	Marble-worker; vocal cords thickened and ulcerated; arytenoid cartilages enlarged; blood tubercular; disease at apices of both lungs	On strict diet for a month; wife sick in bed. Becoming discouraged, gave up treatment altogether. Died.
21. 1874. Woman, middle-aged. Case 17, loc. cit.	Been called consumptive for years; farmer's wife and a hard worker. Advanced tuberculosis; blood tubercular	Partial diet; great deal of medicine. Perhaps would have been saved if treated earlier.

SERIES II.—PARTIAL ABREESTS—THIRTY-NINE CASES.

A.—Cases that followed the treatment faithfully—nineteen.

22. *Illustrative.*—(See No. 21, loc. cit.) Mr. W., aged 60, in 1874 had been consumptive for two years. His occupation was that of an overseer of an amber paint mill. He had, with a cough, marks of increasing debility, as loss of flesh, animation and courage. There was marked dullness on percussion, crepitant and sonorous rales over the upper part of both lungs. The blood also presented fibrin filaments and spores. It is some years since he has lived upon animal food diet; his wife has faithfully prepared the choicest meats for him, and what is more, has encouraged him in pursuing the uncommen diet. The case was rather unpromising at first, owing to its long standing and extent of tubercle infiltration. He is, however (1876), comparatively well. Cough is hardly perceptible. The physical signs are still to be detected, but with less marked characteristics. He attends to his business as usual. Says he expected to die, in which expectation the community shared. The blood shows great diminution in the foreign admixtures. 1879, still living, but very feeble. In October he died.

No. Date, Sex. Age. Publication.	Condition when Placed on Treatment.	Remarks.
23. Man, Case 18, loc. cit.	Severe pulmonary hæmorrhage; dullness on percussion and crackling over left upper third front; emaciation; cough and night sweats	Would not take cod liver oil, then, as now, a standard remedy; ate pound and a half of butter a day; restored to duties, and lived 12 years; death from profuse hæmorrhage; post-mortem showed lung healed—three cavities—on right side and some new disease in the left lung.
24. Woman, Case 20, loc. cit.	Primipara; disease right upper third front; after labor, suffered with prolapsed ovary, which caused much reflex pain; blood tuberculous	Treatment of pelvic disease successful. Restored to health. Lost sight of.
25. 1876. Man, Case 22, loc. cit.	Chest flattened; coughs all night; sweats; debility; dyspepsia, enteralgia and gastralgia; insomnia; gone to bed to die	Strict diet and no medicines; stopped cough in three days. Improved and returned to work as plumber; was drenched by water from a burst pipe; contracted pneumonia; was placed again on strict diet, but never recovered from shock. Death.
26. 1877. Man, Case 23, loc. cit.	Cough; expectoration; loss of flesh and strength; abnormal heart sounds; night sweats; dullness on percussion, expiratory crackling, left upper third front; tuberculous blood	Strict diet; returned to business in a year. Died in 1878 with cardiac symptoms.

No. Date. Sex. Age. Publication.	Condition when Placed on Treatment.	Remarks.	No. Date. Sex. Age. Publication.	Condition when Placed on Treatment.	Remarks.
27. 1876. Man, 30. Case 28, loc. cit.	Tuberculous blood; distorted chest; severe cough; profuse hemoptyses; disease in both lungs; weight 65 pounds	Gained 20 pounds in four weeks; followed diet more or less closely for a year; disease arrested for a time; a man of great courage, and should have been treated earlier and saved.	43. 1874. Youth, 21. Case 24, loc. cit.	Advanced tuberculosis; diet had been mainly flour	Great improvement under strict animal diet. Returned to work. Resumed former diet; died in 1876.
28. 1877. Girl, 17. Case 30, loc. cit.	Throat inflamed; chest thin; ease as to blood and lungs between pre-tuberculosis and tuberculosis. Splenic enlargement . . .	Local treatment to throat; milk diet. Do not know final result. Case was improved.	44. Man, 50. Case 26, loc. cit.	Left upper third chest, cavernous respirations and amphoric tinkling; else where crackling and diminished respiration . . .	Rigid diet. Much improved. Appetite returned, and ate anything desired; death.
29. 1877. Man, 33. Case 34, loc. cit.	Laryngeal inflammation; cardiac hypertrophy; tubercular blood; disease left lung; dyspnoea; prognosis doubtful	Local treatment for throat; milk diet; later, some leeway as to food. Case reported well, 1879.	45. 1875. Man, 43. Case 31, loc. cit.	Malaria and abdominal tumor, 1870; cured, 1875. worked too hard, and lung and throat trouble came on	Improved while on treatment; not encouraged by wife; gave it up and died, 1876.
30. 1877. Irishman. Case 35, loc. cit.	Disease upper part of both lungs; tuberculous blood. One month later, left upper third, tympanitic percussion, metallic tinkling, splashing on succession; lower thirds flat; respiratory murmur absent . . .	On strict diet; did not expect him to recover from pneumothorax, but lung healed over and man died several years later of other trouble.	46. Woman, 29. Case 32, loc. cit.	Pretuberculosis. Under mental strain and grief; ran into tuberculosis . . .	Was improved while under close observation and followed treatment; finally said she would eat what she pleased; did so, and died.
31. Young lady. 1873. Case 36, loc. cit.	Disease in both lungs; left lower third almost hepatized; blood tuberculous.	Improved while at home and on strict diet; visited, ate wrongly; disease lighted up again. Died in 1875.	47. 1877. Woman, 34. Case 33, loc. cit.	Asthmatic. Disease in right lung. Arytenoid cartilage inflamed	Disease arrested. Went from observation and gave up treatment.
32. 1874. brother. Case 37, loc. cit.	Been sick four years; lived out of doors; depressed in mind, as he was not earning money	Case improved; was able to work as a clerk in a harbor steamer. Died 1880.	48. 1880. Man, 54. Unpublished	Heart enlarged. Angina pectoris. 1886, lungs becoming affected with great deal of disease	1880, heart reduced to normal size by diet. Would not follow diet, when lungs became affected, and died, 1889.
33. 1876. Man. Case 38, loc. cit.	Violent hemoptyses. Disease in both lungs. Not afraid to die.	Took cod liver oil besides the general plan here laid out. Jan., 1877. Blood and lungs much better. Living in Tennessee, October, 1879.	49. 1887. Woman, 46. Unpublished	Disease in both lungs. Asthmatic. Heart enlarged . . .	Improved while following treatment closely; but could not control appetite, and would steal food; died 1889.
34. French woman; middle-aged. Case 39, loc. cit.	Disease right upper. Tuberculous blood	Strict diet, closely followed. Well at last accounts.	<p style="text-align: center;">SERIES II.—PARTIAL ARRESTS—CONCLUDED.</p> <p><i>C.—Cases that had bad surroundings; that died of pneumonia, etc.—eleven.</i></p> <p>It may be said that we were not very successful in our treatment of pneumonia complicated with tuberculosis. The complication is a grave one, and is usually the result of carelessness; still, many recover. We have seen cases of tuberculosis under treatment who had gotten the blood in good condition, and on contracting pneumonia, almost always pull through; one difficulty is in not treating the cases early enough, i. e., not arresting the coagulation. But if the blood is full of emboli of yeast and fibrin filaments, and massed corpuscles, there is a great plenty of quick work to be done to relieve the engorged lung and help the heart. Each case needs its own treatment. Pneumonitis in those called well is a more fatal disease than it ought to be, as the laity have been educated into such a dread of it, that when pneumonia is pronounced, they are apt to give up all hope. Antipyrin and the newspapers killed many of the cases that died during the late epidemics.</p> <p>50. <i>Illustrative.</i>—(See Case 27, loc. cit.). In October, 1874, Mrs. —, a woman with a very young child, that especially cried by night and kept its mother awake, was very pale and thin, coughing severely and raising largely. There was diminished resonance on percussion and crackling throughout the upper third of right lung. She adopted the diet and acid baths. In four months the cough was very slight. The physical signs diminished. Her softened lung tissue dried up. The appearance improved so much that a casual observer would have called her well. All the time she suckled her infant. Owing to the hard times, she was obliged to relinquish her diet, and would not accept it as a gift. Immediately she began to fail, and died in the course of six months. The improvement in health kept pace exactly with the imposed diet. When she ate bread, the cough returned; the expectoration was copious. The night sweats reappeared. This shows markedly the relation of animal food to consumption. It is well worth knowing, for if these things "are done in the green tree, what may be done in the dry?"</p>		
35. 1874. Woman, 24. Case 40, loc. cit.	Dyspnoea; hypertrophy of heart; diseased apices of both lungs; had given up school teaching to die; tubercular blood	Adhered closely to diet. Local treatment for throat. Was able to return to her teaching; overworked; disease returned; profuse hemoptyses; death.	51. 1876. Woman, 33. Case 19, loc. cit.	Lived in a damp, musty house. Caught severe cold. Disease upper third front. Tubercular blood. Throat much inflamed . . .	Improved. Passed from under my care. Disease returned. Treated by homoeopathy. Death.
36. 1874. Man, 21. Case 42, loc. cit.	Marked diseased apices of both lungs; an unpromising case	Improved and went to California; died there.	52. 1876. Woman, middle-aged. Case 41, loc. cit.	Disease left lung; cough; expectoration; hæmoptyses	Did well while senior writer supplied her with beef. On his moving away from that town, supply ceased. Case died.
37. 1877. Woman, 36. Case 43, loc. cit.	Blood tuberculous; laryngitis; uterus antverted; disease left upper third front	Unlike majority of cases, did not treat uterus; case improved, but finally retrograded and died.	53. 1882. Man, 24. Unpublished	Small cavities in both lungs; disease arrested for two years	Died of pneumonia.
38. 1886. Woman, 24. Case unpublished.	Disease in both lungs	Arrested for two years; died March, 1889.	54. 1883. Man, 26. Unpublished	Cavity in right lung	Disease arrested for a year. Cough stopped. Died of pneumonia caused by exposure in a rain storm.
39. 1887. Man, 24. Unpublished	Disease in both lungs, as diagnosed by his physician. Not seen by us . . .	Improvement, and disease arrested for two years.	55. 1887. Man, 64. Unpublished	Disease upper third left lung	Improved. Died of pneumonia.
40. Man	Considerable disease	Arrested temporarily.	56. 1887. Girl, 22. Unpublished	Cavity left lung	Arrested for a year. Disgraced socially by a certain crime committed. Disease resumed its sway; death.

SERIES II.—PARTIAL ARRESTS—CONTINUED.

B.—Cases that did not follow the treatment faithfully—nine.

41. *Illustrative.*—(See Case 23, loc. cit.). Miss C., aged 22, residence Cape Cod. Seen July, 1875. Amenorrhœa; cardiac trouble; dullness on percussion in upper part of both lungs; expiratory rales in same location. Blood was full of evidence of disease, as shown by the enlarged white corpuscles, the spores and fibrin filaments; she had been under the hypophosphites of lime and soda. She was put upon the strict diet and mineral acid baths, and was removed to New Hampshire. She was thin in flesh, and unable to walk an eighth of a mile from prostration under the necessary effort. For the next three months was not herself thoroughly convinced of the utility of the measures now proposed; still, her friends were, and by means of their influence, she adhered closely to diet and baths. Immediately there was an improvement in the cough, in flesh and strength, which continued. She walked two miles readily. Returned home for a visit in November. Here the diet was abandoned, ate everything she liked, and took medicines. Remained at home four weeks. She ran rapidly down, lingering till she felt "she could not live two days." Returning to New Hampshire, she improved but little; remained there till April, 1876, when, being very much worse, she returned home to die; died in 1878. This case shows the power of the system to resist the disease, even when not following up the treatment; this resistance ought to be more relied on.

No. Date. Sex. Age. Publication.	Condition when Placed on Treatment.	Remarks.
42. Woman, 30. Case 19, loc. cit.	Between pretuberculosis and tuberculosis	Attention dismissed early, and case died in six months.

No. Date, Sex, Age Publication.	Condition when Placed on Treatment.	Remarks.
57. 1887. Man, 50. Unpublished.	Disease in both lungs . . .	Arrested for a year. Died of pneumonia; family refused the services of a trained nurse.
58. 1887. Man. Unpublished.	Disease in both lungs . . .	Arrested. Death from pneumonia.
59. Man. 1887. Unpublished.	Considerable disease . . .	Arrested for two years. Died of pneumonia.
60. Man. Unpublished.	Disease right lung	Arrested for one year. Died of pneumonia.

SERIES III.—ARRESTS MORE PERMANENT IN CHARACTER, AND MIGHT BE TERMED CURE IF OCCURRING IN OTHER DISEASES.—FORTY CASES.

61. *Illustrative Case.*—(See Case No. 53, loc. cit.) Mrs. W., Cleveland, Ohio, June 21, 1877. Present condition: Suckling a four months' child. Active and doing her own housework. Looks like a person in ordinary health. Coughs occasionally. No sputa. A good-sized, rather flat-chested woman, thirty-five years of age. *Chest*—Dullness on percussion and cavernous respiration over left upper third back. Dullness over the whole left back; elsewhere normal. *Blood*—Inspection showed normal looking blood. Red corpuscles not massed; are distinct, well defined, rouleauxed, no fibrin or mycelial filaments; white corpuscles not enlarged.

This report is more interesting when taken in connection with the following history: In February, 1865, Mrs. W. had been sick in bed four months with the last stages of consumption. She was emaciated to a skeleton; weight, 60 pounds; usual weight, one hundred and thirty pounds. Her physicians, who were regularly educated and skillful men, pronounced her left lung gone—that is, riddled with tubercle that had softened and broken down in such a manner that the pulmonary substance was removed; had become useless, and of course they gave a decidedly fatal prognosis. There was at this time a great caving in or flattening of the antero-posterior diameter of the chest, due to atmospheric pressure conjoined with loss of lung substance. The patient's mother caused the treatment to be faithfully and assiduously followed out. Improvement slowly followed. In four months' time she was able to be out of doors and visit the city. After a time, she resumed her profession as school teacher, and taught successfully for four years. Five years ago she married, and has borne three children, all healthy and vigorous. She likes her meat diet best; lives on it, and works hard. The physical signs adduced show the marks of the ruin wrought in her lung, and also show the tremendous power of food in managing or in affecting the course of organic pulmonary disease, even in its third and hopeless stage. This history reads like fiction. November, 1888, we heard from her that she had continued in good health. A beef-eater.

62. *Illustrative.*—(Unpublished). 1882; young man. Cavities in both lungs; heart enlarged; emaciated as badly as preceding case; profuse hæmoptyses; elastic and inelastic lung fibers in sputa; blood tubercular; was treated very carefully on these plans. Was cured—i. e., his cough ceased; the lungs healed; the heart regained its normal size; he took on flesh and strength; went through Yale college; was graduated with honors. Is well, and was seen by us in May, 1890.

No. Date, Sex, Age Publication.	Condition when Placed on Treatment.	Remarks.
63. Woman, 20. 1865. Case 44, loc. cit.	Cough, expectoration; wasting of flesh; loss of appetite; dullness on percussion and crackling right upper third front. Predisposed to tuberculosis	Animal food diet repulsive, but she was encouraged by her relatives. Was cured, and remains so, 1878; thirteen years.
64. Man. Dec., 1862. Case 45, loc. cit.	Diagnosis, double pleurisy and tubercle, so made by the late Dr. Benj. Cutter. Medication did little if any good	Was ordered to have killed and tubercle, so made by the late Dr. Benj. Cutter, and to eat it. This was done; man seen again 1878; then alive and well; 1893, died of drunkenness.
65. Girl, 16. 1878. Case 46, loc. cit.	Sister dead of tubercle. Blood tubercular; disease right upper third front . .	Placed on rigid diet; was cured, and remained so, 1880.
66. Woman, 1872. Case 47, loc. cit..	Cough, emaciation, copious expectoration; dullness on percussion and expiratory crackling well marked over left upper third . .	Followed treatment faithfully, and was rewarded by restoration to health.
67. Girl, 24. 1875. Case 48, loc. cit..	Right upper third front and back dullness on percussion; crepitant rales and tubular respiration. Tuberculous blood. Diagnosis of tubercle given by late Dr. William F. Stevens, of Stoneham, Mass. .	Lung healed by diet. Has been troubled by a uterine fibroid and pelvic abscess, but pulmonary disease in abeyance.
68. Man. 1873. Case 49, loc. cit..	Copious hæmoptyses; lung breaking down	Heart's action controlled with veratrum; alcohol to outside of chest; rest; strict diet. Cure.
69. Woman, 1873. Case 50, loc. cit..	Hard-working woman. Emaciation; cough; disease upper part right lung; blood tuberculous	1877, in quite good condition; 1889, Ang., no cough; dry rales right lung; has to work hard; troubled with uterine disease.

No. Date, Sex, Age Publication.	Condition when Placed on Treatment.	Remarks.
70. Woman, 31. 1877. Case 51, loc. cit.	1866, Dr. Buzzel, of N. Y., sent her to Wales to recover from hæmoptysis, cough and copious expectoration by diet of mutton, milk, and mountain air.	Results desired in 1866 achieved; 1877, blood pre-tubercular; was run down. Placed on diet and cured. Seen 1890; well.
71. German, 32. 1877. Case 52, loc. cit.	Disease right lung; abject feebleness; no appetite; feared tubercle; night sweats	Gallon of milk a day. Case made rapid progress to health.
72. Girl, 18. 1877. Case 54, loc. cit.	Disease lower part of left lung; blood tuberculous . .	Was dieted faithfully and was cured.
73. Irishman, 1876. Case 55, loc. cit..	Tubercle diagnosticated by other physicians, upper thirds both lungs. Blood tuberculous	Was cured.
74. Girl, 16. 1875. Case 56, loc. cit..	Sister dead of tubercle. Disease upper portion left lung	Partial diet, on which she recovered.
75. Woman, 38. 1877. Case 57, loc. cit.	Blood tuberculous; throat inflamed; pharynx inflamed; cough; some expectoration	Was pulled out of her condition, and is living, 1890.
76. Woman, 1873. Case 58, loc. cit..	Disease upper part of left lung	Restored to health by partial diet. Treated for uterine disease, 1874; well, 1880.
77. Man, 50. 1874. Case 59, loc. cit..	Disease left upper third front	Strict diet. Cured of tubercle and asthma. Remains so, 1880.
78. Irish boy, 17. Case 60, loc. cit..	Tuberculous blood. Acute tuberculosis right upper third front	Diet followed out faithfully. Cure.
79. Woman, 34. 1871. Case 61, loc. cit.	Chronic cough; free expectoration; disease not well marked as yet in lungs. Blood tuberculous . . .	Remained well under treatment till 1888, and return of trouble; was again dieted, with success.
80. Girl, 20. 1878. Case 62, loc. cit..	Chronic cough; free expectoration; night sweats; pallor; weakness; chest first stages of disease; blood tuberculous . . .	Cured and remained so, 1880.
81. Woman, 1871. Case 63, loc. cit..	Blood tuberculous. Disease right upper third, front; cough; severe hæmoptysis; family consumptive; pharynx inflamed, especially patch on posterior pillar palate.	Health restored, 1877. Copious hæmoptysis after excitement; heart laboring too much, 1878; uterine disease; restored blood to its tubercular condition; treated energetically and remains well, 1880.
82. Girl, 1875. Case 64, loc. cit..	Severe hæmoptysis; cough; lungs not much diseased; heart enlarged; blood tuberculous and syphilitic.	Cure.
83. Woman, 35. 1881. Unpublished	Cavity upper part left lung.	Was cured positively, and died of pneumonia, 1885.
84. Girl, 20. 1886. Unpublished	Hæmoptysis; lung fibres in sputum; blood tuberculous	Cured and remains so, 1890.
85. Woman, 50. 1887. Unpublished	Disease base right lung; breath fetid; heart enlarged	Is called atrophy, but may yet go under in her slavish attention to household duties. 1893, well.
86. Woman, 1881. Unpublished	Crackling and cavernous respiration upper third right lung; inelastic fiber in sputum; retroversion uterus	Cured. Wore Cutter Stem Pessary. Died in 1889 of typhoid fever; lung remained healed.
87. Woman, 48. Unpublished	Lung fibres in sputum; gravel of lungs; asthma; tuberculous blood; albumen, fatty epithelia and casts in urine; small fibroid tumor of womb; anteversion and ante flexion.	A tough case; cured of renal and pulmonary troubles; tumor disappeared under diet. Wore Cutter Stem Pessary to California via Isthmus of Panama. Comparatively well as a valetudinarian, 1892.
88. Woman, 38. 1885. Unpublished	Disease in both lungs. Uterine disease	Cured of lung lesion, and fairly well. 1892.
89. Girl, 20. 1885. Unpublished	Disease upper third left lung; lung fibres in sputum. Uterine disease . .	Cured; remains so, 1889.
90. Man, 40. 1882. Unpublished	Cavities in both lungs; profuse hæmoptyses; night sweats. Said to be absolutely incurable	Cured, and remained so for two years. Have lost track of him.

No. Date. Sex. Age. Publication.	Condition when Placed on Treatment.	Remarks.
91. Man, 60. Jan. 1889. Unpublished.	Disease in both lungs . . .	Promptly arrested, and patient satisfied after three months of treatment.
92. Woman, 26. 1877. Va. Med. Monthly, Dec. 1888, and Sept. 1889.	Disease through middle of left lung and at apex; uterine disease; hæmoptyses; lung fibres in sputum	Disease arrested, and patient died, Aug., 1889, from the results of a meningitis and bowel lesion of fibroid thickening.

93. B.—*Pretubercular cases treated that may come under this head.*

Illustrative Case.—(See case 65, loc. cit.). In April, 1876, a young man, eighteen and one-half years old, complained of feeling weak and listless. He had nocturnal and morning cough, with slight expectoration. He was pale and thin, and losing flesh. Consumption was hereditary on both sides of the family. There were no physical signs of pulmonary lesion. Inspection of the blood microscopically disclosed abundant signs of mischief, such as: Fibrin filaments were marked in character; spores and spore collections; mycelial filament; white corpuscles much enlarged, and too flabby, pale, sticky, outlines not clearly cut, aggregated. These, taken together with the history and the rational signs, induced a diagnosis of the pretubercular stage. Under the use of acid baths and strict diet, the sanguineous and other signs began to disappear, so that in a year he was enabled to proceed to Germany and study music. He has been a beef-eater; *i. e.*, eats more of it than people usually do. Alive and well, 1893.

No. Date. Sex. Age. Publication.	Condition when Placed on Treatment.	Remarks.
94. Physician, 45. 1877. Case 66, loc. cit.	Takes cold easily; ulcerated sore throat; weak and debilitated; loss of flesh; slight diminished resonance on percussion; diminished respiratory murmur, strong expiratory murmur, upper right front; blood tuberculous.	Diet, but not very faithfully. In 1880, well.
95. Man, 24. 1876. Case 67, loc. cit.	Father dead of tubercle, and sister dying. He had lost flesh and strength. No voice; pale and anæmic; no lung lesion; blood pretubercular	Treatment resulted in removal of blood morphology of disease. Is well.
96. Woman, 24. 1877. Case 68, loc. cit.	Phthisis hereditary; enlarged lymphatic glands; uterine disease; diminished respiratory murmur throughout the right lung; pretubercular blood . . .	Milk diet; blood became normal; glands nearly disappeared.
97. Woman, 30. 1877. Case 69, loc. cit.	Small fibroid tumor of womb; menorrhagia; blood pretubercular . . .	Blood restored to health, and tumor disappeared under diet influences.
98. Girl, 21. 1877. Case 70, loc. cit.	Feeble respiration right lung; blood pretubercular; debility; cough; uterine disease	Pyrophosphate of iron; strict diet; rest; entire recovery.
99. Woman, 25. June, 1888. Va. Med. Monthly, Dec. 1888.	Mother and brother dead of tuberculosis. Weight, 248. Red corpuscles pale in color and sticky. White corpuscles enlarged with spores of vinegar yeast. Spore collects in serum spaces. Also crystals of cystine	Fatty heart; dieted for six months; weight 150 lbs.; calls herself well, 1892.
100. Man, 60. 1878. Unpublished.	Heavy cough. Brother dead of tuberculosis. Corpuscles massed. Yeast and fibrin filaments present. . .	Dieted and cured. Lived in Japan several years. Well, March, 1890. Diet principally beef and bread. Lives in the South in winter; is a hard worker in his profession. At work in Europe, 1892.

TABLE II.—CASES OF TUMOR AND CANCER—SO-CALLED.

Cases 1-13—Tumor.

No. Date. Sex. Age. Publication.	Condition when Placed on Treatment.	Result.
1. 1873. Woman. Am. Jour. Obs., Oct., 1877, and Med. Bulletin, August, 1891 . . .	Hard, large abdominal fibroid, several years' growth; severe metrorrhagias; exhaustion; health reduced; about to apply galvanism.	Placed on diet largely animal food as preparation for galvanism; tumor reduced one-third, and no operation done; living, 1888.
2. 1875. Woman. 44; Loc. cit.; also A. J. Obs., p. 304, April, 1887	Unmarried; multi-lobar fibro-myoid; abdominal and pelvic; uterus retroflexed; strict diet for nine months; one application galvanism by abdominal and rectal puncture.	Growth arrested and partial reduction by diet; in good health 1892, alive, but few traces of disease.

No. Date. Sex. Age. Publication.	Condition when Placed on Treatment.	Results.
3. 1875. Woman. 48. Loc. cit.	Several abdominal lobes; sessile intra-uterine growth; alarming copious hæmorrhage	Strict animal food diet; growths reduced and health restored; 1888, alive and quite well.
4. 1877. Woman. 30. Loc. cit.	Four children, mother of; uterine growth posterior wall	Tumor disappeared under strict diet. Well 1883.
5. 1875. Woman. Loc. cit.	Unmarried; aged 28; central, round, dense, unyielding tumor extending from umbilicus downward . . .	Tumor reduced to a mere nodule by nine months on strict animal food dieting.
6. 1874. Woman. Loc. cit.	Chain of six tumors traversing abdomen; largest three inches in diameter; pregnancy	Strict diet for lung lesion; child born alive; woman's health improved; too much attention to household and church-fair duties killed her.
7. 1876. Woman. 34. Loc. cit.	Married; childless; abdominal and pelvic multi-lobar tumor; also fibro-cystic disease	Disease reduced by diet; woman quite well, 1890.
8. 1882. Man, 60. April 2 and 9. 1887.	Fibroid disease of stomach, complicated with enlarged liver	Nourishment per rectum till beef preparation could be taken by mouth; cure; alive, 1892.
9. 1883. Woman. See Medical Bulletin, Aug., 1891.	Unmarried, aged 40; tumor at fundus uteri 3 inches in diameter; double inguinal hernia	Wore truss for hernia; tumor disappeared under diet; wore Cutter stem pessary; well, 1892.
10. 1886. Woman. Loc. cit. Drs. E. & J. A. Cutter.	Unmarried; aged 35; immense abdominal fibroid; kept in abeyance by diet so that could do literary work	Two applications galvanism reduced growth.
11. Man, 1889. Loc. cit. Drs. E. & J. A. Cutter.	Aged eighteen; father dead of scrofula and alcoholism; blood tuberculous and syphilitic; large tumor left side of neck, and small growths right side . .	Strict animal food diet; succus alternans and biniodide of mercury; gain in weight, thirty-five pounds in six months; time; tumors degenerated; hardly any signs of disease, 1893.
12. 1883. Woman. Loc. cit.	Unmarried, 40; tumor, Douglas' cul-de-sac	Kept in abeyance several years by diet; patient professional philanthropist, and killed herself by overwork.

Cases of Pseudo-Cancer—13, 14 and 15.

No. Date. Sex. Age. Publication.	Condition when Placed on Treatment.	Results.
13. 1889. Woman. Loc. cit. Drs. E. & J. A. Cutter.	Married, aged 40; four children; tumor right breast, two inches diameter, very painful; uterine hyperæsthesia; growth called cancer by family physician . .	Diagnosis, fibroid; diet, two-thirds animal and one-third vegetable food; mild tonics; uterine hyperæsthesia relieved by iodiform per capsule and vector; tumor disappeared in six months; no return, 1893.
14. 1889. Woman. Loc. cit.	Tumor of breast, called cancer by six dozen cancer specialists; much pain in growth; had been in milk diet, which had done her some good; great uterine hyperæsthesia	Diagnosis of fibroid; pain reflex of womb; patient disappeared from observation.
15. 1890. Woman. Unpublished. Drs. E. & J. A. Cutter	Aged fifty; professional philanthropist; growth right breast three inches in diameter and one inch thick; called cancer by eminent surgeons of Boston, who advised immediate extirpation; no involvement of axilla . . .	Mutilation of breast strongly opposed; advised to do less for humanity and more for herself; two-thirds animal and one-third vegetable diet; growth entirely disappeared, 1893.

Cases, in author's possession, called Cancer, and treated as such; cases 14 and 15 may have been pseudo-cancer. If so, the result still stands, for if the dieting of surgeons had prevailed in Case 17, there might have resulted an operation, with, in the end, cancerous degeneration. For a further explanation of this subject, see "Diet in Tumor and Cancer," reprinted from Medical Bulletin of July, August and September, 1891.

No. Date. Sex. Age. Publication.	Condition when Placed on Treatment.	Result.
16. The late Dr. Amos Twitchell of Keene, N. H. Med. Assoc., 1847; removed by scalpel; recurrence; prepared by H. I. Bowditch. Diet	Growth called malignant by eminent men in America; removed by scalpel; recurrence; prepared by local applications	Disease removed by exclusive diet of milk, cream and bread.

No. Date. Sex. Publication.	Condition when Placed on Treatment.	Results.
In Cancer, Alb. Med. Annals, July and Aug., 1887, and Med. Bull., Aug. and Sept., 1891		
17. Loc. cit. Man.	Case of Dr. Twitchell called osteo-sarcoma of scapula, six inches in diameter; Dr. Twitchell had removed in a similar case arm, scapula and clavicle, case dying year or two after of carcinoma internal organ.	Dr. Twitchell advised his second case to eat nothing but bread and drink an infusion of water-dock; case did so, with result of disappearance of growth in two years.

Men may cavil against this evidence and say that Dr. Twitchell did not know what cancer is; but the intellect that did the capital operation referred to, and could abstain from many foods, must not be condemned in its judgments. Dr. Twitchell was a great light in New England surgery; do surgeons of the present day make any better diagnosis of cancer? The answer is given in the table of cases of pseudo cancer and of true cancer herein given.

Cases called Cancer treated by the writer alone, or in some association with his son. The plans used on the line of beef-feeding as preferable to the milk diet.

No. Date. Sex. Publication.	Condition when Placed on Treatment.	Results.
15. 1876. Woman. Alb. Med. Ann., July and Aug., 1877. Med. Bulletin, Phil., Aug. and Sept., 1891. .	Aged forty; niece of case dead of cancer of calvarium, heart and liver; several hard, round tumors back of womb; smaller growths in cervix; unhealthy vaginal discharges, not bloody; countenance cachectic; worried by separation from worthless husband, whom she loved	Diet of beefsteak and other animal food; tea and coffee; gentle tonics and mild laxatives; death of husband; systemic plans of treatment were enforced, with result of disappearance of disease in about a year; no return, 1887.
19. 1876. Woman. Age 50. Loc. cit.	Cervix uteri enlarged laterally, even to side of pelvis; ragged, rough and bleeding; punky to touch; subject to unrelievable domestic mental troubles; taking opium; diagnosis cancer by eminent surgeons	Beef and other animal foods exclusively fed; thrice weekly cervix buried in iodoform; simple tonics; in three months the ulcerative processes had almost entirely disappeared; against my judgment, returned to New Orleans; disregarded injunctions; disease resumed its course, and caused death.
20. 1880. Man. Loc. cit.	Occupation, shoe-cutter; disease existed thirteen months; hand swollen and open on dorsal surface; carpal bones necrosed; under surface of wrist, volcanic-like swelling inch and a half in diameter and one inch high; in axilla several enlarged stony, lymphatic glands, more or less fixed, some having fistulous openings with discharge which presented under microscope such varied and heterogeneous histological elements that I could not but call it cancer	Attending surgeons' diagnosis, cancer; as consultant, advised amputation at middle third forearm; operation resulted favorably; diet of beefsteak, tea and coffee; patient living in 1892, with disease in axilla quiescent. Is a book agent.
21. 1880. Woman. Age 35. Loc. cit.	Married, aged 35; childless; wife of an advertising physician; case appeared to me to be uterine fibroid cancerously degenerated; great pain in pelvis; profuse bloody discharges; some emaciation	Fed on beef essence made at home; case gained in flesh, strength, color and looks; hæmorrhages ceased; friction arose between husband and self, and case went from under my care; treatment dropped; death.
22. 1880. Woman. Sister preceding case. Loc. cit. .	Mental condition bad, circumstances limited, countenance cachectic; vaginal discharge, not bloody; knobbed enlargements of cervix uteri	Absolute beef diet; with tea, coffee and milk; disease disappeared; 1891, disease in stomach called cancer by attending physician; disappearance under same plan of treatment.
23. 1889. Woman. 65. Loc. cit. Dr. E. & J. A. Cutter.	Occupation, gentlewoman; small growth in left breast; sessile growth right chest wall above breast and one in right axillary space; uterine hyperæsthesia and anteversion; chronic diarrhoea	Growths in right axilla and right chest removed with galvano-cantery; no return; uterine hyperæsthesia relieved by capsule and vector, and case wore Cutter stem pessary for over two years. Growth in left breast is quiescent; has been more or less disturbance in left axilla; diet for months of beef chopped and broiled; tea and coffee; later, entire wheat bread. 1893.

No. Date. Sex. Publication.	Condition when Placed on Treatment.	Results.
24. 1889. Woman. Drs. E. & J. A. Cutter	Abdominal fibro-cystic disease giving appearance of woman at full term; case aged 65; widow, one child; has run a boarding house, and worked very hard; splendid mind and good will power; broke left floating rib (one or more) some ten years previously; when first seen, had peritonitis; pelvis not involved; umbilical hernia.	Case did well under strict diet of chopped beef, and was able to travel ten miles to New York; after about a year became financially straitened, from which condition she never recovered; disease increased; received two applications of galvanism by abdominal puncture; softening and diminution of growth; aspiration of fluid chocolate colored and syrupy in feel; disease began to increase in left side, and caused death; post-mortem revealed much improvement in abdominal cavity, but a large epitheliomatous mass existed in left side.
25. 1890. Woman. Drs. E. & J. A. Cutter. Loc. cit.	Aged 64; disease in breast called cancer by regular physician; taken out by pastes, leaving large, open sore; patient in California.	Under systemic plans breast healed; patient came East in 1891, and pelvis was found to be packed with large growth. Has disappeared from observation.
22. Woman. 1882. Loc. cit.	Discharged from Washington hospital with malignant disease of womb; seen by Dr. R. J. Nunn, of Savannah, Ga., and called cancer by him; patient unmarried; middle-aged.	Tumor gradually and wholly disappeared on systemic treatment; 1884, seen in N. Y. for first time, and found then an enlarged womb; 1887, no growth.
27. Woman. 1877. Loc. cit.; also, Feeding Patients Against the Appetite, case 3, Medical Register, April 2, 1887.	Father dead of cancer of stomach; case sick in bed of great grief, caused by sudden death of last surviving daughter; cardiac hypertrophy and insufficiency of left auriculo-ventricular valve; attacks of angina pectoris; retroversion, engorgement, hardening of womb; eversion of os uteri; behind womb, four small, hard, marble-like tumors; profuse vaginal discharge, not bloody; loss of flesh and strength; nausea; aversion to all food	Fed, against the appetite, with beef, and only on the dictum that if not, would die of cancer of the womb; nausea left in about three weeks; was one year before could walk 500 feet; 1893, heart normal in size and action; uterine disease and post-uterine growth disappeared.

120 Broadway, Equitable Building, New York.

SOCIETY PROCEEDINGS.

American Electro-Therapeutic Association.

Second Annual Meeting, held in New York, October 4, 5 and 6, 1892.

WILLIAM J. MORTON, M.D., PREST.

FIRST DAY OCTOBER 4—EVENING SESSION.

(Continued from page 254.)

USE OF THE ROTARY TRANSFORMER IN MEDICINE.

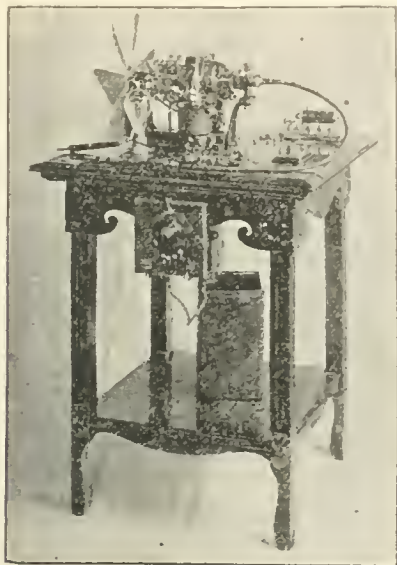
By R. L. Watkins, M.D.

The machine on exhibition is a combination motor and dynamo. By means of it, we can convert the electricity from a storage cell into motion and force for drilling and other purposes for which motion and force are needed; and can transform the storage current into one with a voltage varying from 0 to 150, as may be necessary—the ampérage of course diminishing in proportion to the increase in voltage.

The current obtained is equivalent to that from forty primary cells, and is the "dynamo current," though the effect produced (on sensation and otherwise) is the same as by the current from a battery. Such a current has not been used heretofore, chiefly because, in the author's opinion, there has been no means of obtaining and applying it easily, cheaply and conveniently. It was with the idea of overcoming these obstacles that this machine was constructed.

The power, as I have indicated, is obtained from a storage battery—this being the safest and most convenient source.

While it is possible to keep these batteries charged and in order by primary cells, it has been found that it is much better to have them filled at an electric light station or



some place where they have special facilities for doing it—for instance, in New York the Storage Battery and Supply Co. They will also express batteries out of town.

[Mr. Bunce will describe the machine and cabinet and demonstrate its uses.]

1. Faradic.
2. Cautey.
3. Direct current.
4. Drill, etc.
5. Throat light.
6. Cystoscope light.

The Association then adjourned to the reception at the Electric Club.

SECOND DAY, OCTOBER 5—MORNING SESSION.

THE NEED OF GREATER SIMPLICITY AND UNIFORMITY IN ELECTRO-THERAPEUTIC APPARATUS.

By W. J. Herdman, M.D., Ph.B., Professor of Diseases of the Nervous System and Electro-Therapeutics, University of Michigan.

In forming the purpose of asking the attention of the members of the Association for a few moments to the consideration of the subject of uniformity and simplicity in the apparatus employed for electro-therapeutic purposes, I was much encouraged by reading the proceedings of your first annual meeting. I then discovered, what I already felt must be the case, that I was not alone in the belief that the time has come for "standardizing" the instruments which individual experience has proved to be of service in adapting electricity to the cure of disease. I was impressed with the truth of the statement in the paper read at that meeting by Dr. Goelet upon "The Action and Application of the Faradic Current in Gynecology," that "imperfectly constructed apparatus is the cause of the indifferent results that have been obtained by various observers," and I found myself in hearty sympathy with the declaration of the present President of the Association when he said, during the discussion that followed, "A standard induction battery is desirable—a standard coil—a standard length of wire; then comparative observations could be made." That this opinion at that time prevailed among those present, was shown by the appointment of two committees, charged with

the duty, as I understood it, of considering and reporting upon a suitable form of induction coil and milliamperimeter for electro-therapeutic needs. It is my intent, at this time, to simply call the attention of the members of the Association to the importance of enlarging upon the purpose which called those committees into existence, and to urge upon you to persist in such efforts as are necessary to secure a standard for every piece of apparatus indispensable to a complete electro-therapeutic outfit.

We are convinced of the value of electricity as a therapeutic agent. We feel confident that we have through it gained good results. We know that we have brought about cures with it that could not have been effected by other means. We are satisfied that in all branches of medical and surgical practice it is capable of replacing to advantage certain methods of treatment now in vogue. Both here and elsewhere, members of this Association, and others, have furnished unimpeachable testimony in support of these propositions, and our concurrence in the opinion they express is the bond of our union in this Association. We meet with a view of interchanging such testimony and extending our knowledge, both as to the theories of the action of this mysterious force and the range of its efficiency in the practice of medicine and surgery.

But when it comes to a question of what form, what method, what machinery is best calculated to bring about a desired result in any particular case of disease, we are likely to be as various in our opinions as we are numerous in our membership. Any attempt that any number of us might make to secure the same result with the tools at our command would repeat the experiences at the Tower of Babel, and such efforts would end in like confusion. We are for the most part self-educated in the knowledge we have gained, and each has pursued his search for truth after his own method, and with instruments peculiar to himself, often self-devised.

But the time has come when a union of these individual experiences will result in mutual helpfulness, and the progress of electro-therapeutics toward that period when it will be regarded as one of the most, if not the most, exact methods of treatment, can be materially hastened; for I think we are convinced that second to no other therapeutic agent, electricity, in the treatment of disease, is capable of being established on a scientific basis.

But be it remembered, a science based upon one opinion is not a science in the true acceptance of the term, whatever otherwise be the scientific value of the personality that entertains it. A consensus of the opinions of many who have witnessed like results, from similar conditions, with unvarying accuracy, can alone command a respectful hearing, and lay the foundations of a science. If it is our desire and purpose, therefore, to inaugurate a *science* of electro-therapy, it is fitting that we bear in mind what are the conditions essential to this, and that we take heed of the obstacles that beset our pathway in attempting to meet these conditions, that we may wisely direct our united efforts toward the removal of such impediments. Among these obstacles I need not name the skepticism which has long prevailed in the minds of many worthy members of the medical profession regarding any possible therapeutic value to be derived from electricity. Such skepticism has been justified by the failure and lack of uniformity in results of those who have employed it, but to a much greater degree can it be traced to a natural repugnance aroused by the preposterous claims of blatant charlatanism, which has availed itself of the mystery that enshrouded the workings of this powerful agent to reap a golden harvest from credulous sufferers. The innocent agent must needs share the reproach justly due those who ignorantly and fraudulently

employed it, since the disgusted observer of such practices is not prone to nice distinctions. The dawn of true scientific methods witnesses such obstacles as these rise and float away like morning mist. Neither charlatan nor skeptic can withstand the truth, and if our confidence in the value of electro-therapy is well grounded on demonstrable facts, from them we have nothing to fear.

The real obstacles with which we have to contend in creating a scientific electro-therapy are:

1. A lack of systematic preparatory education in electro-physics and physiology.
2. A lack of uniformity in the appliances by which electric treatments are given.
3. A lack of simplicity in these appliances.

Not a very formidable array, and one which will readily yield before the united efforts of the members of this Association. The appliances that are now considered essential to a complete electro-therapeutical equipment are not few.

The physician who wishes to be furnished with all the apparatus whereby electricity is adapted to therapeutic needs must have:

1. A static or influence machine.
2. Continuous current generators, both stationary and portable, adapted, *a*, for ordinary treatment; *b*, for electrolysis; *c*, for cataphoresis; *d*, for cautery work; *e*, for lighting exploring lamps; *f*, for running motors.
3. Induction coils.
4. Current controllers or rheostats.
5. Milammeters.
6. Coulombmeters.
7. Electrodes of a variety of patterns.

None but the specialist would, in all probability, supply himself with so complete an outfit, and there are those who, with some show of reason, strongly advocate that the practice of electro-therapeutics be confined to the specialist. But this limitation is, to my mind, neither practicable nor desirable. That there will always be ample field for the special practice of electro-therapeutics, I have no doubt, but there is a wide range of disorders with which the general practitioner has to deal, wherein he finds electricity the most suitable agent he can employ, as has been well shown in the paper of Dr. Hutchinson, of Providence. And what is true of the general practitioner is true likewise of the physician or surgeon whose practice is limited to any class of diseases. There are none of them but do, or would find electricity, at times, their most efficient handmaid when they are made aware of its capacities.

This being the case the preparatory education needful for the right understanding of those principles of electric action which lie at the foundation of all intelligent use of it in therapeutics, should be required of every medical student. What one of you, who has acquired any skill in handling electricity in your practice, would have done so but for the knowledge you possess of electro-physics and physiology? And I venture to assert there is not one of you but deplores the fact, as I do most heartily, that in this respect his earlier education was not more systematic and thorough. Let us therefore, remember that every man owes a debt to his profession, and in no better way can he discharge it, than in doing what he can to perfect its methods and aid it in the attainment of better results. Let us not permit those who may follow us in this line of practice to be hampered by difficulties with which we had to contend, but give them, as we may be able, the benefits of our experience.

Instruction in electro-physics and physiology properly belongs to the medical schools, and should be included in their curriculum or among their entrance requirements. At present, however, there are but few schools where either

of these provisions are made, and nine-tenths of medical graduates are sent out with little or no knowledge of the laws governing electric action, either without or within the human body. Colleges are seldom the leaders in broadening medical education, but self-preservation forces them to provide what the profession demands. This Association is in a position to fix the standard of requirement for the physician who wishes to practice electro-therapeutics, and sooner or later all colleges worthy of the name will conform to that standard by making suitable provisions in their course of instruction.

The remaining hindrances that I have mentioned as obstructing the progress toward a scientific electro-therapy it is the duty of this Association to remove. Uniformity in construction of the instruments employed, is the first step necessary to secure uniformity in results. By this means alone can our experience in treatment be made available for the discovery of general principles and laws. The literature on electro-therapeutics in the language of all civilized nations has become quite voluminous. There is much chaff mixed with the wheat that has appeared in text-books, monographs, and in periodical medical literature upon this subject. It is time that we undertake to prove all things, claimed in the name of electro-therapeutics, and hold fast to that which is good. To do this successfully our measuring rods must be of equal length.

Great skill and ingenuity has been displayed by physicians, electricians and mechanicians devising instruments for electro-therapeutic work and as a result we have in the market many admirable tools with varying degrees of excellence in one direction or another, but each aiming at some peculiar quality which has given rise to the greatest diversity in pattern, action and effect. Let us take, for example, any two patterns of induction coils, or static machines, or milliamperemeters now presented for our inspection by the manufactures represented at this meeting and we will find that upon the same patient, other conditions being equal, their action would differ largely. This statement I have taken frequent occasion to verify and I doubt not that many of you have made similar observations. I do not claim that with a "standard" apparatus in the hands of different operators the results would always be uniform, for the personal equation of the operator cannot be left out of the account, but the sooner we succeed in eliminating the wide and useless range of uncertainty that is the necessary consequence of the variety of appliances now in use the sooner will the value of this personal equation be determinable.

By fixing a standard for each piece of apparatus I have enumerated, the physician is not alone benefited. The manufacturer's risk is greatly lessened. He will then know what the practitioner of electro-therapeutics must have and can devote himself, to supplying the need with the best article he can produce, and with confidence that it will find a ready sale whenever electricity is employed. Greater precision and uniformity in action in these appliances will render electric treatments more fruitful of good results and, through the simplifying of methods and making familiar to all the construction and pattern of instruments employed, the demand for them will rapidly increase.

It will be my pleasant duty as soon as standard instruments are adopted by this Association, to subject them to practical tests in laboratory and hospital, where careful records will be kept and the results made known, and with others doing the same we will soon have gathered a mass of statistics out of which a science of electro-therapy will grow rapidly and surely.

It is not a part of my purpose, neither do I presume to suggest any special form of apparatus as worthy of adoption as a standard by this Association. The plan already insti-

tuted by you, of selecting a committee composed of men whose knowledge and experience well fits them for the task assigned them, and of giving them a year in which to investigate and report, is the one best calculated to reach a conclusion and one in which all are most likely to concur, as to the best form of instrument to be adopted as a standard, and I am confident that I voice the wishes of a vast body of practitioners who daily use electricity in their practice, when I make the request that committees similar to those already appointed, be created at this meeting, whose duty it shall be to report at the next annual meeting, upon standards for the *static machine, constant current generators and electrodes*.

Reliability in action of the *static machine* has been found to depend very largely upon its construction. It has its limitations as to size and number of plates. It has a field in therapeutic uses peculiar to itself wherein it is capable of doing most excellent service. Its capacities should have the recognition of this body and the essential features in its construction for therapeutic work should be indicated. The *continuous or galvanic current*, while it is conceded to be more serviceable than any other form of electric energy which we employ, yet it is, as is well known, but seldom used by the practitioner, and I have found many specialists who have shunned it because of the perplexities that constantly arose from its mode of generation. But simple and efficient methods for generating and controlling continuous currents, both for office and bedside practice are in use and need but the authoritative sanction of this Association to be generally adopted. As to *current controllers, or rheostats*, their form must be determined by convenience and in their construction, uniformity in design is not so important as efficiency in action. The use of the coulombmeter will, no doubt, become more general when our science has reached such a degree of advancement as to require the precision of electrolytic decomposition for determining dosage. For the present we must be content to put up with coarser tools until our hands become skilled for finer workmanship.

But in the matter of *electrodes* some attempt should certainly be made to bring order out of the chaos that now prevails in this kind of appliances. If it is generally agreed that *current density* plays the important role in treatments that is claimed for it by several well-known authors and teachers, then the *size, shape and material* of the electrodes through which the body is brought under the influence of such current should receive our careful attention.

With the introduction of uniformity must come simplicity in structure. When all the essential elements of an instrument are preserved simplicity is synonymous with efficiency and economy.

The American watch—an excellent time keeper—having done away with all superfluous parts, has found its way into the pocket of every school boy. Duplicates of its parts can be found at all jeweler's. The little jeweler around the corner can set it to rights at a moment's notice, provided its owner does not care to do it himself, while the unique and elaborate hand-made chronometer from Switzerland must be laid aside as useless upon the breaking of a cog.

Many a would-be therapist has had his enthusiasm for this field of practice dampened by the continual drain upon his purse, time, and good nature, required to keep his electric outfit in working order.

If the time arrives, as it will speedily with our help, when worn-out or corroded parts in electric apparatus can be renewed in a moment by the operator or his assistant, or an accident can be remedied by replacing a broken piece by a new one obtainable at the nearest supply store for a trifling cost, the science of electro-therapy will, in its course,

have cleared the obstructions in the harbor and those who practice it will find it less difficult to preserve intact the third number of the Decalogue.

Discussion.

Dr. Hutchinson said the author had echoed his own sentiments completely, when he said that with our help, the time is coming when repairs to our apparatus can be easily and properly made. Our apparatus is altogether too complicated, and composed of too many parts, which are only accessible to the manufacturer. No part of an electrical apparatus used by a medical man should be so constructed that he cannot repair it, and it was on this account, that he had fought so hard and so persistently against the use of closed cells.

Dr. Goelet was glad to see that the author had recognized the difficulties he had to contend with in the use of electro-therapeutic apparatus, and how particularly annoying this lack of uniformity in construction was in consultation practice. For instance, a physician from a distant part of the State brought a patient into his office yesterday morning for consultation. He had used faradic applications without benefit, but the faradic apparatus which the speaker employed, gave her relief at once. The consultant told the attending physician how he could have a proper coil constructed from which he would obtain practically the same results, but he could not direct him to any manufacturer who would furnish him with such a coil from his regular stock.

In connection with the subject of electrodes, and the material for their construction, he desired to refer to a paragraph which he had seen in the *Pacific Record* for September 15, of this year, in which a short description is given of a new alloy of lead which it is claimed will take the place of platinum. It is very malleable alloy, which is scarcely acted upon acids, and it has been proposed to use it in the manufacture of accumulator plates. It consists of 945 parts of lead, 22 of antimony, and 13 of mercury. The lead is first melted, and then the antimony and mercury added in the order first mentioned, the mercury being added at the moment of pouring into the ingot mould. There has been a tendency to economize in the construction of apparatus, but this is a mistake. A few years ago, he had himself been guilty of this, for he had advocated the use of iron prepared by a special process. Further experience showed it to be unsatisfactory. Tin is a little better, but it is acted upon by the current, and it is possible that it may exert an injurious effect upon the interior of the uterus.

Dr. W. T. Bishop, of Harrisburg, Pa., thought the great obstacle to progress in the direction of uniformity and simplicity of construction was to be found in the fact that we did not ourselves know what we wanted. At present, it was only practicable to adopt a standard of strength and of interchangeability of parts. A sick machine is like a sick man—sick all over; and it is rare that a medical man is capable of taking proper care of even the simplest instruments.

Dr. Waite, on behalf of the manufacturers, said that the difficulties they met with were very great, and perhaps the chief of these is to be found, as had been already said, in the general lack of knowledge on the part of the purchaser as to the use and limitations of the different forms of apparatus. For instance, one medical man wrote to him recently to know if he could charge a storage battery from a static machine. The voltage of the instruments in the market is well known; the trouble is chiefly with the electrodes. These are usually *moistened*, when in use, instead of being thoroughly wetted. The great diversity of construction in faradic coils is well known, but the manner in which this

can be overcome is far from being settled. There is a difference in the cell which charges the coil, in the size of the wire, in the windings of the coil, the number of vibrations, and many other factors, which must be taken into consideration. The only way to settle this matter is by actual tests and extended experiment, just as was done in determining the construction of the dynamo. The manufacturers are trying to make their apparatus as simple as possible, but they are constantly called upon to make this or that change to suit individual whims.

Dr. Nunn said that one of the most annoying things about this subject of the construction of apparatus, is the variations made by different manufactures, and even by the same manufacturer, in the screws used to make the various connections. If the committee could only induce the manufacturers to make the connections interchangeable, they would accomplish a great deal. Why should not this Association adopt a standard for plugs and screws, just as the Microscopical Society has done? In determining the construction of faradic coils, the committee will have to prescribe the proportion between the primary and secondary coils, but in adopting a standard, there should be a wide range permitted, and each point in construction, should be determined from a therapeutic standpoint. Much unnecessary confusion also results from the manufacturer making various changes without realizing the possible importance of these changes.

Dr. von Raitz thought a certain sum should be placed at the disposal of the committee for their investigations.

Dr. Kellogg said that for the past seven years, one of Brown-Sequard's assistants had been engaged in studying electrical currents by the graphic method, and for the past six months, he had himself been carrying out such experiments. So far, his results verified those obtained in Europe, and brought out many new and interesting features. By a proper arrangement of an electro-magnet and a solenoid, or coil of wire connected with a long and slender lever, it is possible to get tracings illustrating the character of each current. Studying the faradic current in this way, shows that the second current is very much stronger than the first, the first being impeded by induction, and the second being reinforced by the primary current. It is possible by proper construction of the apparatus, to partially equalize these currents. The current is also greatly modified by the adjustment of the induction apparatus.

Dr. Herdman, in closing the discussion, said he was gratified that there was such a harmonious expression of opinion concerning the necessity for the Association to take up this work. It was undoubtedly true, as had been said, that much of the trouble was due to our not knowing just what we wanted, and he could furnish hundreds of illustrations like that cited by Dr. Waite. Just before leaving home, he had received a letter from a college graduate of high standing, asking if two axo cells would give him all the current he needed, yet the writer did not state just what he wanted to do with the current! The speaker said he had nothing but praise for the manufacturers; in fact, he thought they had done much to educate us. They must, of course, aim to meet the demands made upon them, and it is a positive detriment to them, as a rule, to have their instruments made after some peculiar pattern, as this interferes with their general use. He was sorry to say that there were a few manufacturers who hoped by some peculiarity of construction to keep up their trade, but such sharp practice really results in throwing the instruments out of the market. The more uniform their construction, and the greater their simplicity, the larger will be the demand for the instruments. Admitting that we do not yet know just what we want, this is no reason why we should not make a step in the right direc-

tion. The same objection might have been made to any system of measurements at the beginning; standards frequently require to be changed, before a perfect system is constructed. We are ourselves responsible for what the manufacturers are doing; they have taken the field because we have failed to do so. To inculcate upon his students the importance of simplicity of construction, he had taught them in his laboratory to begin with the simple Volta cell, and then to construct batteries of several cells, making the proper connections to obtain a certain required voltage. The speaker then exhibited a battery cell which he had devised for the sole purpose of illustrating simplicity of construction. It has zinc and carbon elements, with bichromate solution; there is a simple rheostat on one side, and on the other, is a pole changer. The controller consists of a U tube filled with a saturated solution of sulphate of zinc, and of a platinum wire dipping into the solution, and admitting of adjustment. If the zincs have been accidentally left in the bichromate solution, they can be renewed in five minutes. The discouragement arising from the inability to make the needed repairs, leads many to abandon the practice of electro-therapeutics, and, therefore, it is to the interest of the manufacturers, as well as to the interest of the user, that the construction of these instruments should be simplified. But the responsibility rests upon us as a national organization, and the first step is to appoint a committee to investigate this subject, and in their work, they should not forget to give most thoughtful consideration to such physiological experiments as had been alluded to by Dr. Kellogg. He suggested that three committees be appointed; one on static machines, one on constant current controllers, and one on electrodes.

(To be continued.)

BOOK REVIEWS.

FERMENTATION, INFECTION AND IMMUNITY. A NEW THEORY OF THESE PROCESSES WHICH UNIFIES THEIR PRIMARY CAUSATION AND PLACES THE EXPLANATION OF THEIR PHENOMENA IN CHEMISTRY, BIOLOGY, AND DYNAMICS OF MOLECULAR PHYSICS. By J. W. McLAUGHLIN, M.D., Austin, Texas. Copyright, 1892. Austin, Texas, 1892. Pp. 240.

The author of this little book will be recollected as having described a micrococcus in the blood of patients suffering from dengue or breakbone fever; his observations, though not yet confirmed on account of the absence of opportunity as no epidemic has occurred during the last two years or so, are about the only ones extant on the specific etiology of dengue.

McLaughlin's present work is an interesting contribution to the study of the processes and problems indicated in the title, problems just now occupying the minds of students and investigators the world over. The book really consists of a number of articles published here and there during the last few years in which the etiology of acute, infectious diseases has been discussed from various standpoints; to these articles considerable new matter has been added. The "physical" theory of immunity here introduced is elaborated in an interesting manner, the relation between this theory and the bio-chemistry of to-day is established and on the whole, it must be said that the book will amply reward its perusal. There is no index, but the list of contents at the beginning is quite complete; yet the absence of an index really detracts from the book.

CHICAGO reports one thousand four hundred and seventy-nine deaths from typhoid fever during 1892, against one thousand nine hundred and eighty-seven during 1891.

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MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, MARCH 11, 1893.

SOME MEDICAL FRICTIONS.

The English medical public have protested with great indignation against the position of Mr. LAWSON TAIT, the distinguished gynecologist, who has endorsed the anti-vivisection society in its attacks on medical men for experimental vivisection. The position he has taken, is so untenable from a scientific point of view as to suggest some grave defect of his intelligence. Charges and counter-charges have been made and much bitterness of feeling has been provoked. The impression one gets from this distance, is that however eminent a physician may become, it is not safe to trust to his judgment outside of his special studio. Being an eminent surgeon, gynecologist or specialist, in any department, does not bring superior judgment in other fields of science. Often men who have become prominent in some department of medicine, assume that such knowledge extends to all other topics, bringing with it equal capacity and wisdom. There are many LAWSON TAITs in this country, whose assumptions of knowledge are painful, and whose influence is not unfrequently a direct encouragement of the worst forms of quackery and an obstacle to progressive medicine. Almost every year investigating committees of the State legislatures are formed to ascertain and correct the abuse of incarcerating sane men in asylums for some mercenary object. These are sometimes encouraged and often directly instigated, by eminent practitioners, and persons not only ignorant, but devoid of common or reasoning sense. No one ever hears of practical results, from such committees, and no one is ever found who is sane and has been locked up in an asylum for fraudulent purposes. A few years ago the New York State legislature spent six thousand dollars to investigate such a case, which proved at last to be a most dangerous lunatic. Two such committees are now at work on similar charges, and thus the delusion

goes on year after year. If those physicians who advise so wisely on these matters would turn their attention to the really fearful abuse and wrong, of permitting insane men to be at large, and only recognizing their conditions when they commit crimes, the most practical good would follow. Just now the same dangerous criticism and advice concerning cholera, and other epidemics, appear, coming from men who have no practical acquaintance with these diseases. Boards of Health will cite the opinions of persons as authority, who have no other knowledge except that obtained from the most superficial reading of newspapers. The significance of this will be apparent to every reader, and serves to bring out more distinctly than ever the fact, that whoever becomes a judge and critic of matters of science, must bring some claim to be heard, other than ability in other fields. The great surgeon's judgment on the conduct of a medical journal is of no more value than that of the country doctor. The asylum specialist, and the egotistical teacher in a medical college, are not to be accepted as authorities on matters outside of their every day work. The field of medical science has widened to such an extent that no one man, however eminent, can form a correct judgment of parts of the country he has never traversed. It is fatal to the intelligence of any medical man to join the numerous reform societies, whose work is based on fragmentary truths, that are yet only theories, and are not supported by persons who have the best opportunities to study and observe their assumed facts. Thus opinions on hypnotism, on criminality, inebriety, pauperism and prostitution, with other themes that the public are concerned with, and look to physicians for direction, should be given with great care, and not until the author is confident that he has mastered the facts and their probable meaning.

The old time practice of evolving from ones own inner consciousness, truths of science and practical life, will not bear the test of modern thought. The physician who has any opinions or advice to offer, must give some reasons or facts to sustain it, or have some experience that will add weight to his judgment.

Every year physicians are becoming more influential advisors in medical and hygienic matters in all communities. The need of a larger acquaintance with public sentiment and the evils that are inseparable to every neighborhood, demands better knowledge and a spirit to advise wisely on all occasions. To be skilful in diagnosis and therapeutical resources is not enough to make a great physician. The community demand something more from him as an educated man. A very good eastern physician is rated in his community as of excellent judgment in medicine, but an idiot on other topics. This man's egotism sustains him in the belief that his medical

knowledge, brings with it capacity in all other branches. Such men support anti-vivisection societies, and societies to prevent people from being declared insane, believes in specifics for consumption and inebriety; and advises against surgical operations on the supposition that the surgeon is a "crank," and thinks the knife the only medicine; he claims equal knowledge with experts on all topics, and superior disinterestedness, which gives his judgment great force. The evils which are constantly springing up from this course, are clearly chargeable to the low standard of professional attainments in the past. Men have entered the profession, who were of defective judgment naturally, and who never had solid training. They may by industry, become fairly eminent in some department, but they will always suffer from narrowness, and astigmated vision of science beyond their every day life. Physicians of this class are always sources of trouble and controversy, wherever they go, and should be recognized and rated on the level where they belong. When this is done the general profession will not be disturbed with these weaknesses but pass them by unnoticed.

MUNICIPAL ASEPSIS.

Our most recent European exchanges inform us of little outbreaks of cholera in quite a number of localities, and they also tell of the greatest activity on the part of both National and municipal governments in efforts at placing all cities and towns in the cleanest possible condition. Special attention is given to the improvement of water supplies. Strict and stringent sanitary laws are enacted and rigidly enforced by the strong arm of monarchical governments, in the hope that such measures will prevent a breaking out and spread of the cholera scourge. The enactment of quarantine measures for the stoppage of Eastern immigration is also resorted to in Germany, and is being considered in England for the same purpose.

We regret that we are not able to report similar sanitary activities in many American cities and towns, every one of which is in a greater or less degree threatened by this same dreaded scourge.

Streets, alleys and sewers should be scrubbed and scoured until they are in as nearly an aseptic condition as possible.

Very few of our cities have a pure and uncontaminated water supply. This is a matter of the utmost importance. Within the past two years (1891 and 1892), there have been more than thirty-four hundred deaths in Chicago alone from typhoid fever, a disease that is known to be traceable either directly or indirectly to an impure water supply. Some other cities have suffered severely from the same cause. In order that the city may be recorded as in even an

approximately aseptic condition, a vast amount of scrubbing, scouring and cleaning must be done.

Infectious diseases have their homes and breeding places in many of the vile sinks, called tenement houses, from which they are not only allowed, but made to spread here and there, through the cupidity and avariciousness of landlords and dealers in wearing apparel.

The Nation and many States are going through the process of change of political rulers. A hope is entertained that the new brooms will sweep clean in sanitary affairs, for there is certainly room for a world of improvement in many localities.

At such a time as this public health considerations are of prime importance, and the health authorities should be clothed with autocratic power. In this connection the regulation of the practice of medicine is of equal importance.

While it is lamentably true that the members of the medical profession are sometimes held up and publicly criticised as alarmists in the face of an impending epidemic, let us not carp too critically at such exhibitions of sublime ignorance, but proceed to show to the world that our special knowledge of the history and treatment of infectious diseases is not only rational, but susceptible of accurate demonstration. Further, the people should be thoroughly informed that a violation of sanitary and hygienic laws is certain to be followed by a suitable punishment.

Having performed her own duty in this regard, and RACHEL is made to weep and mourn for her children and will not be comforted; let her maledictions fall first upon the heads of those in authority, and then upon those whose avarice has made it possible for her to live and see her children taken from her by preventable causes.

Local medical societies should appoint committees to wait upon the executive and legislative branches of State and city governments for the purpose of indicating to them prophylactic measures that should be rigidly enforced at this particular time.

The passage of the following bill by the Legislature of Minnesota is of particular interest:

STATE OF MINNESOTA.

Twenty-eighth {	S. F.	No. 328
Session. }		

Introduced by Mr. Tawney.
February 16, 1893.

A BILL For an Act to Protect the People of the State of Minnesota Against the Importation of Acute Contagious Diseases by the Regulation of Interstate Immigration.

Be it enacted by the Legislature of the State of Minnesota.

SECTION 1. For the better protection of the people of this State against Asiatic cholera and other contagious diseases the State board of health may establish a system of quarantine against the introduction of pestilential diseases by the various railway and navigation companies doing business in the transportation of passengers across the borders of this

State; the members of the State board of health, or their properly constituted representatives, are authorized to board any railway conveyance used in the transportation of passengers across the borders of this State, or any vessel entering the waters of this State, for the purpose of sanitary inspection to ascertain the existence of cholera or other dangerous contagious diseases.

In case it is found any such conveyance named is infected with such disease, the said officer may, in his discretion, isolate and quarantine all passengers so infected or endangered by or from exposure, together with their baggage and effects, and detain the said conveyance or vessel until it is rendered safe by proper disinfection and fumigation.

SEC. 2. Any and all transportation companies shall afford the officers of the said board reasonable facilities for the sanitary inspection of cars and vessels by furnishing necessary transportation to inspectors, by detention of cars and navigable vessels during isolation of passengers, together with their effects, and shall immediately submit to the fumigation and disinfection of such conveyances and cars as may be deemed necessary by the board for the protection of the public health.

SEC. 3. The necessary expense of fumigation and disinfection of cars and vessels shall be at the expense of the owners of cars or vessels so inspected.

SEC. 4. When it is made apparent to the Governor of this State that any railroad company or other transportation company is not exercising due or reasonable vigilance against the introduction of Asiatic cholera or other dangerous contagious diseases, he shall announce such conclusion by proclamation, and thereupon and thereafter the entire expense of quarantining immigrants or emigrants or passengers shall be a direct charge against said company.

SEC. 5. Whenever the said board shall discover the existence of cholera or any infectious diseases on any railway car or vessel without the boundaries of this State, they shall cause notice of such fact to be served upon the agent or officer of the company operating such car or vessel, and thereupon and thereafter it shall be unlawful for such company or any of its officers or agents to bring or cause to be brought within this State such car or vessel, except it be in accordance with such reasonable rules and regulations as the said board shall adopt applicable to such case. Any person or corporation who shall violate any of the provisions of this act shall be punished therefor by a fine not to exceed one thousand dollars (\$1,000) or by imprisonment in the State prison not more than one year, or by both such fine and imprisonment.

SEC. 6. This act shall take effect and be in force from and after its passage.

THE PATHOGENIC ACTION OF TYPHOID BACILLI ON ANIMALS.

GAFFRY, SIMONDS and FRAENKEL, and after them many others, have studied the pathogenic action of typhoid bacilli in animals by means of inoculation with pure cultures and the results have appeared, as a rule, to be due to an acute intoxication with the soluble products of the microbes rather than to an actual bacillary invasion and proliferation. Quite recently this matter has been thoroughly investigated by CHAUTESSE and WIDAL, whose previous joint work on the action of typhoid bacilli in animals is well known, and also by SANARELLI (*Annales de l'Inst.*, Pasteur, Nov., 1892), and the interesting

results obtained by these investigators agree in all main points.

The somewhat contradictory results announced by previous workers were undoubtedly due to the fact that cultures of varying intensity were used in the experiments; the typhoid bacillus is of unstable virulence and appears to lose its activity soon, unless cultivated uninterruptedly. CHAUTESSE and WIDAL found that the virulence of the typhoid bacillus can be exalted by inoculating guinea pigs successively with the serous fluid found in the peritoneal cavity of an animal of this kind which has succumbed to the effects of an inoculation; that is to say, the first animal was inoculated subcutaneously with a certain quantity of fresh culture from the effects of which it died after twenty-four to forty-eight hours; a small quantity of the peritoneal serum of this animal, which was found to swarm with bacilli, was now injected into the peritoneal cavity of another animal which succumbed very rapidly, and by passing the bacilli in this way from animal to animal, their virulence was found to increase in a very remarkable manner. The preliminary injection of a moderate quantity of sterilized cultures of streptococci, or of the colon bacillus, or of proteus vulgaris, and then inoculating the same animals with cultures of typhoid bacilli, was also found to intensify the virulence of the typhoid germs in a most marked degree. The bacilli of typhoid fever would be found in large quantities and in pure culture in all the organs, in the blood, and in the serous cavities as well as the intestines; the spleen was greatly enlarged, the intestines congested, the Peyer's patches and mesenteric glands swollen and tumefied in the animals subjected to these experiments. The action of the soluble products of the microbes mentioned appeared to greatly and directly facilitate the invasion of the bacilli of typhoid fever. This point may throw some light on the etiology of enteric fever in man in whom the toxic products are produced in the intestinal canal by streptococci, by the colon bacillus and other microbes, which may so modify the general condition of health as to favor typhoid infection.

The investigators mentioned were also able to utilize the fixed virulence by typhoid bacilli created in the ways referred to for the immunization of animals against the typhoid virus. Immunity was produced by inoculating animals with a certain quantity of virulent culture in divided doses. There being an interval of several doses between each inoculation, and also by means of other methods. An immune animal remained unaffected by doses of virulent virus fatal under ordinary circumstances. The injection of serum from typhoid fever patients and from persons who had passed through an attack of fever also produced immunity, though of short duration, in guinea pigs against virulent virus. The next

step in this work was to show that the serum of animals rendered artificially immune was not only prophylactic but also curable, by injecting serum of a vaccinated animal into the body of a guinea pig soon after it had received a fatal dose of virulent virus, when great modification of the usual symptoms occurred and recovery ensued. Finally it was attempted to demonstrate what curative effect, if any, the injection of the serum of immunized animals would have on patients suffering from typhoid fever, and CHAUTESSE and WIDAL made two experiments of this kind on two patients, but the course of the disease was not modified. In spite of the failure of these efforts, it would nevertheless seem, that as long as the serum of animals vaccinated against typhoid infection has actual therapeutic properties, it will not be long before this important discovery can be successfully applied to the actual treatment of enteric fever.

MEDICO-LEGAL POINTS.

In a case recently tried in the Supreme Court of the State of Illinois, the following decision was given:

Siebert v. The People. Supreme Court of Illinois. (Opinion filed October 31, 1892.)

3. EVIDENCE—*Competency of expert to give his opinion.*—A practicing physician who is shown to be a graduate of a regular medical college, and to have practiced his profession for many years, is competent to give his opinion upon an hypothetical question setting forth the symptoms of a deceased person, whether the death was from the effects of arsenical poison, although he may not be shown to have had any case of such poisoning. A medical witness in giving his opinion as an expert, is not confined to opinions derived from his own observation and experience, but may give an opinion based upon information derived from medical books.

11. CRIMINAL LAW—*Instruction as to reasonable doubt.*—On the trial of a criminal case, it is not error to instruct the jury that it is not necessary to prove each link in the chain of circumstances relied on, or every fact in the case, beyond a reasonable doubt, but it is sufficient if, taking the evidence as a whole, they are satisfied beyond a reasonable doubt of the defendant's guilt.

15. EVIDENCE—*Offer of vial and box embraces contents.*—When a vial and box containing poison is offered in evidence and admitted, the only object of offering them in evidence being to get the contents to the jury, an instruction to the jury not to consider the contents is properly refused.

DOMESTIC CORRESPONDENCE.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

¶ The first article in THE JOURNAL for Feb. 25 causes me to make one more effort to set the profession right on the subject of "Drunkenness."

Webster is cited as authority on the meaning of the words—law and drunkenness, but it would take a very learned man to distinguish the difference Webster makes in the meaning of the two words, drunkenness and inebriety, and I do not think there is anything to be gained in quibbling over the question as to whether a man is a drunkard or an inebriate; and from a legal standpoint it is of no consequence. If there is ever a law passed for the protection of the drunkard in his many evil deeds, the same law will apply to the inebriate. The point to be settled is this: Is

the drunkard responsible for his crimes? I claim that he is now, and ought to be hereafter. I will state a few reasons why I think so. Every State in the Union gives men a legal right to drink intoxicants, and notwithstanding the many laws prohibiting the sale of intoxicants, not one law says that man shall not have the right to drink. This is evidence that the law making power concedes man the legal right to drink or not drink, as he may elect. The law is silent until the results of *too much drinking* are manifested. So soon as man begins to violate law, whether drunk or sober, the right to check him is upheld in all law abiding communities. Now if the government is a unit in the opinion that all men have a right to drink intoxicants, how can it consistently say that a man shall not be held responsible when he violates this right and privilege by drinking *too much*. It is evident that the crime is not in the act of drinking (all men have a right to drink) but of drinking *too much*. I now venture the assertion that there is not a drunkard on the face of the globe that does not know that *too much whiskey* will make him drunk. And he further knows that if he takes this too much whiskey (in this country) he will likely get into trouble. Now apply this knowledge to any other species of crime, and see whether or not it is consistent to let the transgressor go free and unpunished.

Now, about drunkenness as a disease. If drunkenness is a disease when does it become so? How are you to know the victims? Is a man a drunkard *before* or *after* he drinks too much? I believe that the law will say that the drunkard is such only *after drinking too much*. I know that some learned men say that drunkenness is a hereditary disease, but this, if true, would only complicate matters. Let me show you some of the results that would happen if the law making powers should conclude that drunkenness is a hereditary disease, and not a vice. Every drunkard in the land would go unpunished; every criminal would plead disease as an excuse for crime. If he had been living soberly, he would claim that he had the disease in his blood, that his grandparents were drunkards; and most every man could prove that such was the case. How few men can boast of an ancestry clear of drunkenness? No, sir; this fad won't go. Drunkenness is a vice. The Bible defines it as such. Christianity teaches it and has taught it from the time of the apostles up to date.

The precedent that drunkenness is a legitimate excuse for crime would ruin any people that adopt it. It is contrary to reason, contrary to right, contrary to the Bible, contrary to God's established law, and lawyers and doctors should be the last men to say, let the drunkard go unpunished. I know that many drunkards become insane, but the law should make a very marked distinction between the two troubles. One, drunkenness, is a voluntary act, insanity cannot be helped. The law heretofore has been able to distinguish one from the other, and the physician who tries to make them identical is an ass. Without intoxicants it would be impossible to create drunkards, but the country has plenty of insane people who are in no sense, drunkards. This is enough to show the differentiation. Drunkenness is the result of too much intoxicants. Insanity is a result of a diseased brain. But why labor to prove established facts.

W. P. HOWLE, M.D.

Oran, Mo.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Dear Sir:—It has this day been my privilege to examine a most marvelous instance of human physical precocity. The subject is a boy, Charles Edward by name, who was born unto Mitchell and Mary Jane Paulk, who farm for a livelihood in Irwin county of this State, on the 24th day of

November, 1888, and is now four years and three months old. He measures around the chest, 29½ inches, shoulders, 37; waist, 30; hips, 34; is four feet, three inches high, and weighs 90 lbs. The hair under the arms and over the pubes, and the genitals are as fully developed as those of the average adult. There is neither mental precocity nor imbecility. There are 20 deciduous or milk teeth, and he has a splendid bass voice. There was nothing unusual at birth, at which time he is supposed by the parents to have weighed about eight pounds. The father weighs 189 pounds, the mother 110 pounds, and there are three other children of natural proportions in good health. This is a case having but few parallels in history—notably, that described by Mr. Dawkes, a surgeon at St. Ives; the boy of "Salamus," mentioned by Pliny, and that seen by Craterus, who was in the short space of seven years, an infant, an adult, a father, an old man and a corpse. J. G. HOPKINS, M.D.

Thomasville, Ga., Feb. 23, 1893.

MISCELLANY.

THE ELEVENTH INTERNATIONAL CONGRESS OF MEDICINE

Will be held in Rome, September 24 to October 1, 1893. President, Prof. G. Baccelli, Rome; Treasurer, Prof. L. Pagliani, Rome; Secretary-General, Prof. E. Maragliano, Genoa.

The inauguration of the Eleventh International Congress will take place the 24th of September, in the presence of H. M. the King of Italy.

The work of the Congress will begin in the nineteen Sections on the morning of the 25th of September. It will be continued in accordance with the arrangements to be made and published both for the general sessions and the Sections. Some of the general sessions will be devoted to scientific addresses delivered by scientists of all nations.

LIST OF THE SERIES.

1. Anatomy; 2. Physiology; 3. General Pathology and Pathological Anatomy; 4. Pharmacology; 5. Internal Medicine; 6. Diseases of Children; 7. Psychiatry, Neuropathology and Criminal Anthropology; 8. Surgery and Orthopedy; 9. Obstetrics and Gynecology; 10. Laryngology; 11. Otolaryngology; 12. Ophthalmology; 13. Odontology; 14. Military Medicine and Surgery; 15. Hygiene; 16. Sanitary Engineering; 17. Dermatology and Syphilology; 18. Forensic Medicine; 19. Hydrology and Climatology.

REGULATIONS.

1. The Eleventh International Congress of Medicine will be inaugurated in Rome, on the 24th of September, 1893, and will close on the 1st of October.

2. Any physician may become an active member of the Congress by fulfilling the conditions of membership, inscribing his name, and securing his admission ticket.

3. Scientists of other professions who, through their special studies, are interested in the labors of the Congress, may acquire the rights and assume the duties of active members, and participate in the work of the Congress, both by communication and discussion.

4. The fee for admission to the Congress is twenty-five francs, or five dollars.¹ It entitles to a copy of the Transactions of the Congress, which will be forwarded to the members immediately after publication.

5. The character of the Congress is strictly and exclusively scientific.

6. The work of the Congress will be divided amongst nineteen Sections; every member is requested to indicate, on paying his admission fee, the Section for which he desires to be inscribed.

7. The provisional committee will arrange the appointment, in the opening session, of the permanent officers. There will be a president, three vice-presidents, a number of honorary presidents and secretaries. Each Section will elect, in its first meeting, its President and a certain number of honorary presidents, who shall alternately take the chair during the session. Some of the secretaries will be

chosen from among the foreign members, in order to facilitate the recording both of communications and of discussions in the different languages.

8. There will be daily sessions, either general or sectional. The times and numbers of the general sessions, and the business to be transacted in them, will be arranged by the President of the Congress.

9. The general sessions are reserved, *a*, for the consideration of the common work of the Congress and its common interests; *b*, for addresses and communications of general interest and importance.

10. The addresses in the general sessions, and in such extraordinary sessions as may be arranged, will be delivered by members chosen by the committee for the purpose.

11. Papers for and communications to the Congress must be announced on or before June 30, 1893. A brief abstract of every paper and communication, with their conclusions, must be sent to the committee on or before July 31. All of them will be printed and distributed to the members by authority of the president. Such as arrive after that date cannot be expected to find a place on the regular order of business, and will be accepted only if time will permit.

12. The business of the Sections will be arranged by their presidents, who will also determine the hours of meeting, avoiding those reserved for the general sessions. Two or more Sections may hold joint meetings with the consent of their presidents. There will be no vote on scientific questions.

13. Fifteen minutes are allowed for the reading of a paper or communication. In the discussion every speaker can have the floor but once, and for five minutes only. To close the discussion the author of the paper is allowed ten minutes. Additional time may be given him by the president, by special resolution of the Section, if the importance of the subject under discussion appear to require it.

14. The manuscript of all addresses, papers and communications read either before a general session or a Section must be handed to the Secretary before the close of the meeting. A special committee on publication, appointed by the president, will decide which or what part of them shall be published in the Transactions of the Congress. Such members as participate in the discussions are required to hand to the Secretaries their remarks in writing.

15. The official languages of the sessions are, Italian, French, English and German. The regulations, programs and daily bulletins will be published in the above four languages. During the meetings, however, a member may be permitted to use for a brief remark any other language, provided some member present expresses his willingness to translate such remarks into any of the official languages.

16. The president directs the discussions according to the parliamentary rules generally obeyed in similar assemblies.

17. Persons not classified under Article 3, who are interested in the labors of a special section, may be admitted by the president of the Congress. They will receive a special ticket on paying their admission fee; will not be entitled to a copy of the Transactions; and cannot speak in the general sessions nor in any section other than that for which they were inscribed.

18. The president may invite or admit students of medicine to attend and to listen. They will be given a special admission ticket, free of charge.

GENERAL INFORMATION.

Journeys and Reduction of Fares.—The provisional committee has made arrangements with the different Italian and foreign railway and navigation companies, in pursuance whereof special reduced prices have been granted on the steamers and railways of this country and of the countries which the members of Congress are to traverse.

In Italy the members will find tickets for round trips, starting from Rome; they will thereby be enabled to visit the most important cities and the various universities. In regard to this, further notice will be given.

The Ladies of the Members will be furnished ladies' tickets, which will entitle them to the reduced fares granted to the members, and to participate in the festivities connected with the Congress.

Festivities.—Besides the receptions which the kind and hospitable citizens of Rome will offer to the members, the Italian colleagues will endeavor to return to the best of their power, the kindness they experienced during their stay abroad.

On some evening yet to be decided, the members of the different sections will join at a dinner which will be given in one of the first hotels of Rome.

¹ Money order to the Treasurer, Professor Comm. L. Pagliani, Rome, Italy.

The Italian physicians have formed special committees to show the most hearty and kindly hospitality towards the foreign colleagues.

International Exhibition of Medicine and Hygiene.—On the occasion of the Eleventh International Medical Congress, an Exhibition of Medicine and Hygiene will be inaugurated in Rome, which will gather all that may practically interest physicians and specialists. A special committee has already insured the coöperation of all the most important manufacturers of the world.

Hotels.—All the first and second-class hotels of the Italian capital will afford to the members, during their stay, all desirable comforts.

THE TRI-STATE MEDICAL SOCIETY OF IOWA, ILLINOIS AND MISSOURI will meet in Keokuk, Ia., Tuesday and Wednesday, April 4 and 5, 1893. Following is the program:

1. A New and Rapid Method of removing the Uterus, with Specimens, Emory Lanphear, M.D., Kansas City, Mo.
2. Professional Secrets, W. R. Allison, M.D., Peoria, Ill.
3. Cardiac Stimulants, W. H. McGaw, M.D., Swedesburg, Ia.
4. Treatment of Uterine Fibroids, J. H. Buehler, M.D., Revere, Mo.
5. Sanitary Science *vs.* Epidemics, Geo. P. Neal, M.D., Ft. Madison, Ia.
6. Some Gall-Stone Cases, J. F. Keeper, M.D., Sterling, Ill.
7. J. M. Shaffer, M.D., Keokuk, Ia., subject not announced.
8. Cerebro-Spinal Meningitis, J. A. Schreck, M.D., Cameron, Ill.
9. Cystitis, with Post-mortem Specimen, R. L. Murdy, M.D., West Grove, Ia.
10. Ellen H. Heise, M.D., Canton, Ill, subject not announced.
11. Bacteriological Diagnosis, Conrad Meyer, M.D., Keokuk, Ia.
12. Observations in a recent Epidemic of Typhoid Fever, A. J. Baxter, M.D., Astoria, Ill.
13. Some Accidents in Parturition, J. W. Holland, M.D., Osceola, Ia.
14. Impetigo Contagiosa following Vaccination, Louis Becker, M.D., Knoxville, Ill.
15. H. C. Eshbach, M.D., Albia, Ia., subject not announced.
16. Fractures of Long Bones, John I. Skelly, M.D., Pekin, Ill.
17. Puerperal Fever, C. C. Heady, M.D., Bloomfield, Ia.
18. Amputation above the Hip Joint, E. J. Blair, M.D., Monmouth, Ill.
19. M. S. Marcy, M.D., Keokuk, Ia., subject not announced.
20. *a*—Treatment of Intra-cranial Lesions; *b*—Demonstration of Intestinal Anastomosis by Murphy's Buttons, C. E. Ruth, M.D., Keokuk, Ia.
21. Bacteriology of Female Genital Tract, O. B. Will, M.D., Peoria, Ill.
22. Mercuric Intoxication, J. Fred. Clarke, M.D., Fairfield, Ia.
23. Epilepsy, Charles W. Hall, M.D., Kewanee, Ill.
24. L. B. Ryan, M.D., Galesburg, Ill., subject not announced.
25. The Rubber Bulb as an Aid in Intestinal Surgery, Francis Reder, M.D., Hannibal, Mo.
26. Localization in Diseases of the Spinal Cord, Frank Norbury, M.D., Jacksonville Ill.
27. Lecture; subject not announced, Woods Hutchinson, M.D., Des Moines, Ia.
28. Prostitution, its Cause and the Relation of the Medical Profession to its Abolishment, J. F. Percy, M.D. Galesburg, Ill.
29. Cancer of the Cæcum, W. B. Sisson, M.D., Kahoka, Mo.
30. George Edward Marshall, A.M., M.D., Keokuk, Ia., subject not announced.
31. W. E. H. Bondurant, M.D., Downing, Mo., subject not announced.
32. Hints on Treatment of Typhoid Fever, S. K. Davis, M.D., Libertyville, Ia.
33. Removal of a Foreign Body from the Larynx, W. B. Maddox, M.D., Montrose, Ia.

W. H. MARTIN, M.D.,

President.

J. M. BALL, M.D.,

Secretary.

SECTION OF LARYNGOLOGY AND OTOTOLOGY.—The Section of Laryngology and Otology, which is now to be counted among the most flourishing and productive of the Association, promises another strong program for the Milwaukee meeting. Papers are announced by: E. L. Shurley, Detroit;

C. H. Knight, N. Y.; H. Knapp, N. Y.; D. B. Delevan, N. Y.; Leartus Conner, Detroit; Alexander Randall, Philadelphia; C. W. Richardson, Washington, D. C.; F. Crossfield, Hartford; Normal H. Pierce, Chicago; George Williamson, Omaha; H. C. Heath, Indianapolis; E. Cutter, N. Y.; C. H. Burnett, N. Y.; Holbrook Curtis, N. Y.; W. H. Dale, Pittsburgh; E. Fletcher Ingals, Chicago; Lucien Howe, Buffalo; S. G. Miner, Detroit; A. B. Thrasher, Cincinnati; D. S. Campbell, Detroit; Don M. Campbell, Detroit; S. McCuen Smith, Philadelphia; A. J. Erwin, Mansfield; S. G. Labney, Louisville, and others.

To participate in the discussions are: Drs. W. E. Casselberry, Chicago; Samuel Sexton, N. Y.; Dr. Reeves, Toronto; Dr. Brown, Toronto, and others. Members of the American Medical Association, who desire to contribute, and others who have been invited to do so, are requested to send the title of their papers before May 1, to the Section Secretary, Dr. J. E. Boylan, 113 Broadway, Cincinnati, in order that they may appear in the preliminary list.

PAN-AMERICAN MEDICAL CONGRESS.—SECTION ON HYGIENE, CLIMATOLOGY AND DEMOGRAPHY.—Persons proposing to present papers before this section are requested to communicate with either of the undersigned *immediately*, that the subjects may be properly classified for the program of the proceedings of the Congress. The only limitation as to subject matter is that it shall have a sanitary climatological or statistical bearing. Members of the Section on State Medicine of the American Medical Association, of the American Public Health Association, the American Climatological Association, the American Academy of Medicine, and of State and Municipal Boards of Health, are especially invited to contribute the results of their several experiences. The authorized languages of the Congress being Spanish, Portuguese, French and English, papers may be presented in either, to be translated in the others, for which reason their text should be in the hands of the secretaries at the earliest possible date. Peter H. Bryce, M.D., Secretary, (English) Toronto, Canada; Pedro José Salicrup, M.D., Secretary (Spanish), 129 East 12th Street, New York City. Albert Gihon, M.D., President, 145 East 21st Street, New York City.

SECTION ON MEDICAL PEDAGOGICS.—The Pedagogic Section will devote its attention especially to the history of the development of medical education in America.

In the papers presented by leading teachers, recent advances in methods of instruction will be considered.

The *art of teaching*, which is regarded as a study of great interest in other branches of learning, has received hitherto but little attention from the medical profession.

The Section on Medical Pedagogics will therefore be made a prominent feature of the Congress and it is hoped that those interested in medical education will coöperate in the work of this Section by being present, and by actively engaging in the discussion of subjects presented.

Any inquiries or communications may be made through the secretaries. J. Collins Warren, M.D., Executive President, Boston, Mass. Charles L. Scudder, M.D., English speaking Secretary, Boston, Mass.; Wm. F. Hutchinson, M.D., Spanish speaking Secretary, Providence, R. I.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from February 25, 1893, to March 3, 1893.

Major Edward B. Moseley, Surgeon, now on duty in Washington, will report in person to the Surgeon-General of the Army for duty in his office, as soon as Major Robert M. O'Reilly, Surgeon, shall report for duty as attending surgeon in Washington. By direction of the Secretary of War.

Major Robert M. O'Reilly, Surgeon, the suspension of the order directing him to report for duty as attending surgeon in Washington is, by direction of the Secretary of War, removed.

Major Robert M. O'Reilly, Surgeon, having reported to the Major General commanding the Army, is assigned to duty as attending surgeon in Washington, to date from February 28, 1893.

Major John H. Bartholf, Surgeon U. S. A., is granted leave of absence for six months, to take effect March 13, 1893, with permission to go beyond sea.

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ORIGINAL ARTICLES.

A CONTRIBUTION TO THE STUDY OF CHOREA LARYNGIS.

BY W. PEYRE PORCHER, M.D.,

OF CHARLESTON, S. C.

Lecturer on Laryngology and Rhinology and on Materia Medica and Therapeutics in the Charleston Medical School. Visiting Laryngologist to the City Hospital, Charleston, S. C. Formerly lecturer on Laryngology and Rhinology and on Materia Medica and Therapeutics in the Medical College of the State of South Carolina, etc., etc.

The Hippocratic maxim, "naturam morborum curationes ostendunt," the cure shows the nature of the disease applies with more force, perhaps, to the study of chorea laryngis than anything in the whole field of medicine, for so erratic and inexplicable are the movements of the larynx and so hidden are the causes of the disease, that the most skilled pathologist or diagnostician finds himself at a loss to account for them.

Of the twenty-six cases already reported all but two have been followed by insensibility, but as this occurs so frequently after violent paroxysms of cough it cannot be regarded as a diagnostic symptom. The fact that not only may the choreic movements of the larynx exist without insensibility following them, and even that the cough also may be absent, makes it exceedingly difficult to classify any case as coming directly under this head, unless all the symptoms are considered as a whole, together with the general neurotic tendency of the family, etc.

In the *Medical News* of Philadelphia, March 19, 1892, Dr. W. C. Phillips, writes, "Of the various neuroses of the larynx, none is so rare or so unique in characteristics as that described as 'laryngeal vertigo,' 'laryngeal epilepsy' and 'complete glottic spasm in adults.'" So few cases of this affection have been reported that it would seem to be the duty of observers to report such cases as may come under their care, and for this reason I take occasion to add another to the list."

The case reported by Dr. Phillips, was accompanied by loss of consciousness after each attack of coughing, but Knight, McBride and others do not consider loss of consciousness as an essential feature to the disease. In fact two cases have been reported in which there was no cough, or loss of consciousness.

The history and nomenclature of the affection have already been so fully and ably discussed by others that no further elaboration is needed at my hands. I will therefore proceed at once with the report of the two most interesting cases which have so far come under my observation. In neither was there any insensibility at any time present and the second case was not even characterized by the complete closure of the glottis which existed in the first.

It was however, impossible to classify either case as anything but pure laryngeal chorea.

The treatment pursued in both cases was necessarily as varied as the symptoms themselves, for that which proved most effective in the first case was of but little benefit in the second. There were only three points which were common to both cases, viz.: the general chorea and neurotic element present, the violent and exhausting paroxysms of cough and the fact that in both cases treatment directed to the nose and naso-pharynx was of more benefit than that applied to the larynx or anything given internally.

The first case was that of a spinster aged about 40, white. She was of a neurotic temperament with a very anæmic complexion. For several years past she has been subject to sudden attacks of closure of the glottis, lasting for several seconds, preceded by a violent cough and recurring at varying intervals, especially during the winter. As she describes it, "she was rendered speechless but not insensible." She had many years ago been subject to a very severe nervous strain, having witnessed the sudden and fearful death of a near relative, since which time she has had but little control over her nerves. She was especially liable to take cold and of course her symptoms were aggravated at that time. Her sight and hearing were good. She had no aural vertigo nor any stupor or mental confusion. The heart's action was sound but inclined to be weak. There was no perceptible disease of the lungs. The posterior turbinated bodies were somewhat hypertrophied, and the larynx and pharynx were very pale with profuse discharge of mucus from which she constantly endeavored to rid herself by clearing her throat. Her menstrual functions had been exceedingly irregular, months frequently passing without any return of them. She had no special diathesis except perhaps a slight malarial cachexia.

The laryngeal spasm was so annoying that she was obliged to take her meals in private, for fear that the excitement from the presence of others would bring on a paroxysm of coughing and a return of the spasm. There was no stupor or insensibility of any kind following these attacks. To test the paresthesia of the larynx, however, on her first visit to me, I passed a probe armed with a pledget of cotton into the naso-pharynx; instantly there was a spasmodic closure of the glottis and the patient lost her breath completely, her face became livid, and several seconds elapsed before she was able to regain her breath. The uvula being somewhat elongated, I first removed a portion of it, and then began a series of manipulations in the naso-pharynx, as advised by Lenox Browne, "that the treatment should be directed rather to the pharynx than to the larynx." A solution of argentic nit. alternated with the glycerine iodine, and iodide of potash solution was applied to the naso-pharynx every other day. Sulph. of codeia, grs. $\frac{3}{4}$, dissolved in alcohol and simple syrup was given her at night and repeated pro re nata, and the following spray was ordered to be inhaled every time the cough began, viz.: R. eucalyptol, oil pipsissewa, aa grs. ii; menthol, grs. iv; benzoinol, ounces iv. At the end of about a month she reported a complete cessation of the spasms and stopped treatment. At that time I could make any application to the naso-pharynx without exciting the slightest spasm of the glottis, and this freedom from spasm continued for perhaps two years, during which time she had no return of it of sufficient severity to cause her to apply for treatment again.

At the expiration of that time, however, she was brought back by her attending physician, and she then stated that she had had a violent and continu-

ous cough, all during her waking moments, for three months previous but not accompanied either by the spasm or any loss of consciousness. Her behavior proved the accuracy of this statement for she coughed so incessantly during her visit to me that she could only with difficulty describe her case. Her physician stated that he had tried every form of cough mixture, anodyne, etc., without avail. Anticipating that it might be due to some reflex irritation from the gastro intestinal tract, I ordered a mercurial cathartic, to be followed by the sulph. of codeia and inhalation as before, and I was myself surprised, as well as her friend, at the rapidity which her cough was checked. At her next visit on the third day, she reported that the cough had almost entirely left her, and the change for the better was extremely noticeable. In a recent note she informs me that she has had occasional returns of the cough during the winter but none of the spasmodic attacks, then or since, and adds "that the cough was finally paralyzed by the sulph. of codeia which her family physician advised her to take in the form of a powder three times a day, and that she is now enjoying a respite which she hopes will never cease."

Case 2.—Like the first, this was a case of chorea laryngis with paroxysmal cough. It was superinduced upon an attack of pernicious anaemia, but the symptoms of prolonged closure of the glottis followed by insensibility were both absent.

The patient was a maiden lady aged about 35, white. She had had a persistent cough for several years past. She had also one or more attacks of malaria which finally culminated in a severe attack of pernicious anaemia. She was exceedingly pale, eyes large and easily suffused. The violence of the paroxysms of cough had increased greatly during the last few months previous to her coming to me, and she was correspondingly weakened and prostrated after them.

Her family history was phthisical, having lost a sister from that disease. She had no heart disease, nor was there any perceptible derangement of the lungs and bronchi. The mucous membrane of the larynx and pharynx was very pale and exceedingly sensitive to irritation, and there was considerable engorgement of the tonsillar tissue and vessels at the base of the tongue.

The mucous membrane of the nose partook of the general condition: The middle turbinate on the right side was hypertrophied and pressure upon it by a probe would immediately set up a paroxysm of coughing. Referring to my notes on the case, I find that treatment for the first two or three weeks was without avail and during this time many things were tried. She was given large doses of syrup of ferri iod. Fowler's sol. of abscein, sulph. of codeia, etc., internally; and locally anodyne inhalations and applications of various astringents and pigments were made; among which was a solution of fld. ext. krameria, sulpho carbonate of zinc, and eucalyptol, as advised by Dr. Roe of Rochester, N. Y., and the tonsillar tissue of the base of the tongue was thoroughly cauterized with the galvano-caustic needle. Very little benefit was derived from all this except that she seemed to think that the character of the cough had, to a certain extent, changed. I then noticed that after using a 10 per cent. spray of cocaine in the nose, which I did in order to facilitate examination, that although her voice would become decidedly hoarse, her cough would be distinctly lessened while the effect of the cocaine lasted she was therefore given a 4 per cent. spray of cocaine to be used in the nose during the paroxysms of cough and the right middle turbinate was cauterized with the galvano cautery. The effect was marked and satisfactory. The cough was materially lessened and the patient's general health greatly improved. This improvement continued for about two weeks, when I was obliged to leave the city for a short time and a relapse occurred. The cough and incessant clearing of the throat returned with almost the same severity as at first, and the patient complained very much of the weakness following the attacks. She was then ordered ferri carb. precipitata, grs. xv. between meals, sulp. codeia grs. $\frac{3}{4}$ to 1, at night, and the middle turbinate and lingual varix were cauterized. Improvement has again taken place, the

cough has greatly diminished and the patient's recovery is now assured.

It will be noticed in both of these cases that the treatment from which most benefit arrived, was directed rather to the upper than the lower respiratory tract. In the second case the effect of cocaine in the nose is of especial interest, as most writers, notably Drs. Roe, Major, and others, agree that cocaine, when sprayed into the larynx, is rather injurious than otherwise. The patient herself thinks that the cocaine spray had a better effect than anything else that was used, and so stated to me.

Further comment on these cases is perhaps unnecessary, but it is interesting to note that in spite of the general chorea, the disease affecting the larynx was undoubtedly purely reflex, as proven by the treatment—which only succeeded in the second case after I had experimented with almost every method of treatment which has, so far, been recommended, that I am aware of. At one time this patient and myself had almost become discouraged; she at having taken so much medicine without avail and I at having almost exhausted the pharmacopœia, and it was only by repeated assurances that her recovery was both possible and probable that I persuaded her to submit to further treatment. The discovery was then made of the influence of cocaine and cauterization in the nose, and it finally resulted, in the cure of the case.

4 George Street.

THE EXTERNAL TREATMENT OF ACUTE VESICULAR ECZEMA.

Read in the Section of Dermatology and Syphilography, at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

BY LOUIS A. DUHRING, M.D.,

PROFESSOR OF SKIN DISEASES, UNIVERSITY OF PENNSYLVANIA.

There is no cutaneous disease in the acute stage that the general practitioner is called upon to treat more frequently than eczema. In one variety or another in its earliest manifestations he is continually meeting with it, inasmuch as it falls to his lot rather than to that of the specialist. The latter, in private practice at least, seldom has the opportunity of observing the disease in the first stage, and rarely until some application, soothing or irritating, has been employed. Frequently it is the latter kind of remedy that has been applied, thus augmenting the already actively inflamed cutaneous surface, increasing cell proliferation and exudation, serous or plastic, as the case may be. Such examples of acute eczema, undoubtedly aggravated by the application used, injudicious as to the remedy itself, or, as is often the case, as to the strength, frequently find their way to the specialist. It is with the view of directing the attention of the general practitioner to some of the remedies and formulas that I have found most useful in treating this stage of the disease that I beg to present the following remarks.

The subject in its several aspects is capable of such extension that in order not to consume too much time it will be necessary to exclude a great deal that might be touched upon. I will consider, therefore, one variety of the disease, acute vesicular eczema, the variety in which this disease frequently manifests itself as an acute eruption. It generally makes its appearance rather suddenly, and often spreads rapidly, in the course of a few days demanding

active treatment. A variable amount of itching and burning exists, which is usually severe, together with more or less erythema, vesiculation, or an open, excoriated surface, cutaneous cedema, and infiltration. Owing to the irresistible desire to scratch, the weak and seriously infiltrated epidermis is soon excoriated, and the disease thereby aggravated. It is just at this stage of the pathological process that so much can be done by local treatment to relieve the condition of congestion and cell proliferation, both of which usually gain force rapidly from day to day if permitted to pursue their course unchecked. There is no pathological process which runs a more rapid course, especially after the horny layer has been raised or detached. Now is the moment for suitable applications, and it is gratifying to note frequently how much may be accomplished in twenty-four hours towards arresting the process and in affording comparative ease to the patient. It is not essential for my purpose that the regions affected should be specified, nor does it matter whether the disease be confined to a small or a large area. In most cases, however, the eruption occupies considerable surface upon a given locality, as for example, the face, or one or both forearms, upon which the lesions may be either widely disseminated or in the form of patches. Sometimes large surfaces, as the abdomen and sides of the thorax, or the thighs are invaded.

The mode of applying the remedies selected is more important than most physicians are inclined to think. To the majority of skins it makes a vast difference whether an ointment or a lotion is used. Experience shows us every day that to some skins ointments are more acceptable than lotions, and *vice versa*. One may relieve, the other may aggravate. In other instances the firmer and more consistent pastes prove more serviceable than the salves. In the majority of cases they are decidedly more valuable than ointments, and consequently play an important part in the therapeutics of eczema. To say whether one or the other of these modes of application is indicated in a given case is, I believe, largely to be determined by experience, but even with this advantage the wrong mode may be selected. There are, however, some indications to which attention may be directed which may aid in deciding this question. Thus we find that in acute erythematous eczema, washes are generally tolerated better than salves, and pastes better than salves. In acute vesicular eczema, mildly stimulating washes followed by salves or pastes are usually more serviceable than washes alone. Salves alone, employed in the form of inunction, the popular method of applying them, are as a rule not beneficial. The general physique, complexion and nutrition of the patient, and especially the nutrition of the integument and its vascularity, together with the dryness or scalliness of the horny layer, should all be taken into consideration. Skins possessed of good nutrition and with a fairly healthy vascular tone, and fleshy subjects, do best under washes, while the thin, pale, anæmic skins generally improve under fatty applications in the form of pastes and salves. There is one point of practical importance in the use of applications of whatever kind they may be, and that is that in acute eczema they should never be rubbed in. Friction in this stage of the disease is always injurious. It is distinctly aggravating to the disease, and is to be

deprecated. This is an important principle to be remembered. Prescribe an ointment and commit it to the patient without explicit directions as to the mode of using it, and the chances are that it will be applied with more or less friction. Patients, even the most intelligent, require to be told precisely how to use the remedy ordered. The principles of the treatment should be explained to them. By friction the deranged skin is further stirred up, excited and irritated, when just the opposite effect is desired. The object to be attained by applications is to ease the congested capillaries of the skin by backing the fluids or keeping them as much as possible from the surface, and secondly to give relief to the irritated terminal nerve filaments supplying the germ layer of the epidermis and the papillary layer. The regulation, therefore, of the distribution of the blood and lymph, and a direct local sedative action upon the cutaneous nerve filaments, are the two most important effects to be striven for.

Having thus briefly alluded to the existing pathological condition and to the general principle involved in the treatment, reference may be made to some of the remedies, and, what is of great importance, to the formulæ. I shall refer more particularly to those which are in common use and are obtainable in any drug store. The local therapeutics of diseases of the skin are to some extent influenced by the fashion of the day, as in the case of surgical dressings in general, but there are certain drugs and standard formulæ that will always remain in vogue. One of such remedies for acute vesicular eczema is the officinal black-wash, employed according to a certain method. It is to be diluted with one or two parts of lime water, to which a little alcohol or mucilage of tragacanth may be added, about a half-drachm to four ounces. This is used after the manner of an evaporating wash, dabbed lightly on the vesicular or oozing surface with the sediment for twenty or thirty minutes and then allowed to dry on the skin, when a layer of oxide of zinc ointment, thickly and evenly spread on soft cloths, is to be applied and bound on with a bandage. The manufactured, spread oxide of zinc muslin-salve, as devised by Unna, may also be employed, with the advantage of being accurately spread, and consequently neater and cleaner. The applications of wash and salve should be repeated three or four times in the twenty-four hours. Relief from the itching and burning is often experienced immediately, and in a day or two a decided subsidence of the symptoms may be looked for. This plan of treatment is one that I have employed in innumerable cases for many years past, both in hospital and private practice, and can be recommended as being both simple and efficacious. A saturated solution of boric acid, to which sometimes a few drops of alcohol or glycerine, or both, may be added, will also prove soothing in some cases, especially where the horny layer is macerated or wanting, leaving the germ layer exposed. In these cases, too, a weak resorcin wash may be prescribed, as follows:

R. Resorcin, ʒss-ʒj.
Glycerin, fʒss.
Aq. dest., fʒvj. ℞.

The strength of the resorcin it will be noted is weak,—five or ten grains to the ounce. Where the integrity of the horny layer is not much impaired, the strength may be increased, but as a rule the best

results are obtained with a weak strength. It is a remedy of value not only in acute but also in other stages of eczema, and in some other diseases, especially dry seborrhea of the scalp. As in the case of salicylic acid, the action of resorcin depends largely upon the strength employed. Both of these drugs, which have been in dermatological use for about ten years, possess two kinds of action, one soothing, when applied weak, the other stimulating or mildly caustic, and destructive to the epidermis when used strong. Salicylic acid, especially in the form of an ointment spread on cloths or a paste proves most beneficial in the strength of about ten grains to the ounce. It is, however, of more value in the subacute stage and in recurrences of the disease than in the first outbreak. The paste referred to has as a basis from two to four parts of oxide of zinc to four parts of petroleum.

Another formula, proposed by Lassar, consists of oxide of zinc and powdered starch each two drachms and four drachms of petroleum. Pastes of this kind, soft or stiff in consistence, according to the needs of the case, and simple or medicated, are especially useful as night dressings, but they may be employed with equal benefit through the day. For the face and hands, in order to overcome the objectionable white color of the zinc oxide, I have substituted a certain amount of calamine for the zinc, a drachm or two to the ounce. Pastes of this kind should be lightly smeared over the surface, so as to form a thin coating. They adhere to the skin satisfactorily, drying in more or less rapidly, according to their consistence. They should never be rubbed in with friction. In cases where fats are not tolerated by skin, good results may be obtained from the employment of a plasma, or basis-substance composed of tragacanth, glycerine and water, as has lately been brought forward by Prof. Pick, of Prague. I have experimented considerably with this plasma, made in various proportions, but usually employ the following formula: Tragacanth, 5 parts; glycerine, 2 parts; boiling water, 93 parts. Triturate the tragacanth until a smooth mass results, when the glycerine is added; a thin, jelly-like substance is obtained, which is spread easily over the skin and dries rapidly, forming a film or coating. As it tends to sour on being kept long, I usually add two per cent. of boric acid. With this plasma as a basis-substance may be incorporated for acute vesicular eczema, such drugs as oxide of zinc, calamine, litharge, and boric acid, in small quantities, in order not to make the preparation too stiff for satisfactory use. It possesses the advantage of being removable by washing, although if much zinc oxide, which is adhesive, be used, it adheres and is easily removed.

I desire also to call attention to a class of lotions containing in suspension powders, for the most part bland or soothing, which act favorably upon inflamed, vesiculating skins by the deposit excluding the air, and through the cooling effect of evaporation. A formula of this kind consists of prepared calamine, in fine powder, 3s; oxide of zinc, 3s; glycerine, xv; lime water, 3iv. This is to be dabbed lightly on the skin for twenty or thirty minutes every few hours. Subnitrate of bismuth may be substituted for the calamine and zinc. To washes of this character other more active ingredients may sometimes be added with benefit, in all instances in weak strength. Thus, resorcin which is freely soluble in water, five

or ten grains to the ounce; the tincture of coal tar in the same strength or weaker; carbolic acid and ichthyol, both in similar strength, are all serviceable. But such remedies should be used tentatively, at first, for the skin often rebels against them, preferring the blander applications. Sulphate of zinc in solution, from a quarter of a grain to a grain to the ounce, either alone or with other lotions, as the calamine, sometime acts as a mild astringent and as a sedative. Similar in its action, though less caustic, is the compound zinc sulphide lotion, made as follows: Zinc sulphate and potassium sulphide, each from two to five grains; water, four ounces. This forms a light, white precipitate. The salts must be fresh and each mixed with a little water separately and then combined.

The protective and soothing ointments of most value are diachylon ointment, made with the finest olive oil and litharge, or with equal parts of diachylon plaster and petrolatum. The latter is an inferior ointment to the first for the purpose. Oxide of zinc and bismuth subnitrate, one and a half drachms to the ounce of lard or petrolatum are also grateful to the skin. Refrigerant salves are also acceptable at times. These, owing to the evaporation of water they contain, are often cooling. Examples of them are found in the numerous so-called cold cream ointments, all of which contain water. To all of these ointments as a basis various soothing and sedative substances, such as boric acid, carbolic acid salicylic acid may be incorporated with advantage. Bland dusting powders are sometimes of service in acute vesicular eczema, but my experience with them shows that they do not benefit so much as the modes of treatment already referred to. They are most useful following the application of soothing lotions. Medicated dusting powders are liable to irritate, notwithstanding the favorable reputation they possess. Cleansing agents more or less deterative, to remove crusts and scales, should be used cautiously, and in most cases are not called for, the effete material being removable more effectually and without irritation by lotions, pastes or salves. Plain water should be used as little as possible. Soaps, even the milder or neutral kinds are not well borne, and the same may be said of medicated soaps. Alkaline washes are usually irritating, and so are oils and glycerine. This latter substance extracts and absorbs moisture from the diseased and macerated epidermis and the papillary layer, and thus aggravates the disease.

A word may be said concerning the importance of rest and position, where the eruption occupies considerable surface or exists upon the extremities. The skin and especially the capillary circulation calls for rest and freedom from all possible sources of irritation. Motion or exercise of any kind that tends to draw the circulating fluids to the part is injurious and should be avoided. In the case of an extremity, the various local symptoms will be arrested more speedily by means of the remedies used if attention be paid to this point.

I have thus endeavored to sketch very briefly the principles which should govern the local treatment of the acute vesicular variety of this disease. The subject might readily be elaborated into a lengthy essay but the aim has rather been to put the essential matter into as few words as possible. The remedies and formulæ given are those in daily use in hospitals and private practice, and I think may be relied upon in suitable cases.

ONE YEAR'S WORK IN TUBAL AND OVARIAN LAPAROTOMIES. THIRTY-SEVEN CASES WITHOUT A DEATH.

BY FRANKLIN H. MARTIN M.D.,

Professor of Gynecology, Post-Graduate School, Chicago; Surgeon to Woman's Hospital; Chief of Staff and Gynecologist to Chicago Charity Hospital; Member of American Gynecological Society and Chicago Gynecological Society, etc.

Between August 1, 1891, and August 1, 1892, I performed thirty-seven laparotomies which involved the removal of the tubes or ovaries of one or both sides. Of these cases, seventeen were for pyosalpinx, one for tubal hematocoele, one for extra-uterine or tubal pregnancy, three for removal of appendages for fibroid, one removal of appendages for hysterio epilepsy, twelve ovariectomies for ovarian cysts, and one for solid ovarian tumors. These thirty-seven cases were operated upon without a death. Neither does this series of successes represent a lot with death at either end. Back of them, in May, 1892, was my last death in this kind of work, there being nine successful operations between it and this report, and four successful ones since August 1, the end of this report, making a gratifying, and not altogether usual series of fifty consecutive cases without a death. This report, however, deals alone with the year's work of thirty-seven cases.

A successful operator, like an orthodox Christian, should be a trinitarian. The parallel holds good to the extent that if he neglects one member of the trinity, he is as effectually lost as though he neglected all. The operator's trinity consists of, 1. Thorough preparation; 2. Thorough operating; 3. Thorough after-treatment.

PREPARATION.

I can speak only of the immediate preparation of a patient for an abdominal section. It must be taken for granted that the patient has been examined physically, and pronounced in a general way, in a condition for a severe operation.

Kidneys.—When a patient enters the hospital for an operation, the house physician gives orders to measure the urine passed in twenty-four hours. It is carefully examined by the house physician, chemically and microscopically. If, in this examination, the urine is found approximately normal in quantity, if it contains no albumen, pus, sugar or casts, preparations are commenced for the operation, and the day before it is to be performed the urine is submitted to a second examination. If at this time it passes muster, the patient is considered safe, as far as the kidneys are concerned, if they are carefully watched after the operation.

These precautions, however, have not always served me. I have had three cases in which albumen was not present before operating, which developed serious symptoms subsequently, proving that my preparatory examination of the secretion was at fault, and that in reality the patient had an undiscovered chronic nephritis when I operated, which was lying dormant, only to be roused into serious activity by the anæsthetic and shock of the operation. Through consultation with my friend, Dr. C. W. Purdy, in a few of these cases, I have learned that I am not safe until I have demonstrated the quantity of urea to be of the correct proportion, and also that valuable hints may be obtained by noting the arterial tension, etc.

Bowels.—In preparing patients for an ordinary laparotomy I begin preparations of the bowels two nights before the morning of the operation. The first point is to seek thorough emptying of the bowels throughout their entire length. The second point should be to render their contents thoroughly aseptic and the third point should be to impart to them a maximum tonicity.

The bowels are emptied by means of mercurials and salines. The first night of preparation of the bowels gr. vi of blue mass is given. The next morning at 6 A.M., 3i doses of each, citrate magnesia and sulphate magnesia, are given every hour until the bowels move, or feel as though they would move with the aid of a small enema. This ought to insure a thorough movement of the entire length of the intestinal canal. If the movements of the bowels are such, with the above treatment, to insure a thorough evacuation, and to start a free flow of bile, as indicated by the yellow glistening appearance of the stool, no further catharsis is necessary. The lower bowel should be thoroughly evacuated, however, by the employment of large enemas of soap and water, repeated four or five times during this second day of preparation. The last enema should be given late in the afternoon of this second day of preparation, if the operation is to be done the following morning, and the next morning if the operation is to be performed in the afternoon. The bowels are rendered aseptic by large doses of bismuth and salol. During the first and second days of preparation, gr. x of salol and gr. xx of subnitrate of bismuth should be given every six hours.

The bowels are stimulated by means of a carminative, an alcoholic stimulant and strychnine. The second day of operation, 1 drachm doses of tr. cardomons in 1 oz. of brandy are given every six hours. Strychnine is commenced three days before operation in $\frac{1}{40}$ gr. doses every eight hours, and gradually increased in quantity until $\frac{1}{20}$ gr. doses are given. The bowels should be kept in a thoroughly aseptic condition by feeding the patient a milk diet for two days before the operation.

External preparation of the patient.—The first day of the preparation the patient should receive a thorough general bath and then be placed in clean clothing and a clean bed. The abdomen should then be rubbed with a saturated solution of permanganate of potassium until it is of a uniform mahogany color. This should now be scrubbed off by means of a sponge or brush and the application of a saturated solution of oxalic acid. A green soap compress should now be bound on to the abdomen, this latter to remain all night. Vaginal douches of first soap and water, second, $\frac{1}{1000}$ bichloride solution, and third, plain sterilized water should be employed this first night. These should be repeated the night before the operation, and a last vaginal douche given immediately before the operation. The second night of preparation should begin with shaving of the abdomen and pubis, and should be followed by applying a bichloride compress. Immediately before the operation, after this compress is removed, the abdomen should be scrubbed with green soap and hot water, this to be followed with alcohol or ether, and covered with antiseptic towel until the incision is made.

The bladder should be evacuated by means of a catheter immediately before the operation.

Dress.—The patient is put into a long loose woolen night gown immediately after an operation, and is thoroughly covered, except the abdomen, with flannel blankets during the operation.

The room should be relieved of all superfluous furniture, thoroughly sealed and then fumigated by burning stick sulphur. The bed should be aseptic and provided with rubber sheet, draw sheets, etc.

OPERATION.

Assistants and nurses.—These participants, in a peritoneal section, should be required to take a general bath the night preceding the operation and to put on clean linen and underclothing. The hair should be included in the bath. Before entering the operating room, all heavy clothing should be removed and a clean white wash-suit substituted. The hands and forearms should be scrubbed for fifteen minutes in green soap and warm water, the water being changed frequently. The nails should be cut short and well cleaned. The hands should then be thoroughly scrubbed in $\frac{1}{1000}$ bichloride solution.

The instruments.—Silk ligatures and silkworm gut should be sterilized by boiling, steam or dry heat, and then placed in shallow trays on a small table to the right of the operator, and covered with sterilized water.

Operating room.—A steam or dry heat sterilizer containing dressings should be convenient to the nurse. Reservoirs of sterilized water, hot and cold, should be placed near the sponge table. A large glass irrigator should be at hand. The table with which the Trendelenburg position may be obtained is necessary, and should be placed in an advantageous position for light and assistants. The arrangements should be approximately as follows: The table near the centre of the room with head of patient toward the chief window. Anæsthetizer at head of patient. Operator on right of table (from head). Chief assistant and assistants opposite operator with the chief nearer the head of the table. The surgical nurse in charge of instruments at stand to right of operator. Nurse in charge at foot of table with sponge dish on small stand in reach of second assistant. Assistant nurse to her right, the latter to work sponges, and to attend to irrigator, sterilized water, etc. Superintending nurse without regular assignment ready for emergency. To left of operator, small table with sterilized solution for hands. Back of the assistants a similar table. Visiting physicians, admitted after everything is ready for the operation to begin, are arranged around the room out of reach of the operating corps or any concerned in the operation.

Operation.—I am suspicious of an operator who operates on time. The best operators are those who operate well in the smallest space of time; this implies that the best operators are slow operators. An abdominal incision should be a clean, true, unhaggléd cut, so that accurate coaptation is possible. Cold sponges should be employed on the external incision in order to contract the capillary vessels and check their bleeding without the necessity of a forcep. Forceps should be employed, however, everywhere in abdominal surgery where their use will save blood, because, most of our old fashioned shock was caused by unnecessary loss of blood. Keep the operative field free from oozing points if possible, even at the loss of a little time. The peritoneum is best

opened between two catch forceps after being elevated so as to present a thin fold. After a small opening is made, the finger passed into the cavity should act as a guide upon which to complete the incision. The peritoneal edges should be attached to the integumentary edges by means of catch forceps, to prevent its subsequent peeling off from the abdominal walls by the manipulation. In all pelvic surgery of smaller tumors, the pelvis should at this point be elevated by means of the Trendelenburg table; the elevation being just sufficient to draw the bowels away from the field of operation, and to elevate the contents of the pelvis. Sterilized silk should be employed for any pedicle which it is safe to tie and drop. Catgut may be employed to close simple peritoneal rents. Means of securing pedicles in abdominal hysterectomy will not be discussed here further than to say that they should be secured externally, either in the abdominal incision or in the vagina. Where practicable, I prefer the latter.

Drainage should be employed in all cases where extensive enucleation has occurred, or where there is a slow venous oozing from separated adhesions. Drainage, in competent hands, never does harm, therefore, where there is the slightest doubt, it should be employed. It has saved many lives, and makes more comfortable those who might not have died without it, but who have been given the advantage of it.

After my operation is finished, the peritoneal cavity is flushed, if that procedure is considered necessary; then if there has been at the operation a process of enucleation, leaving of necessity slight oozing points, or in cases where ordinary adhesions have been separated, after drying the cavity as far as possible, I place in the cul-de-sac a glass drainage tube and pump out any remaining fluid. I next protect the abdominal contents from the abdominal wound with a large flat sponge, and insert the sutures, after which I again pump the drainage tube. If there is more than a drachm of bloody fluid, I leave tube in until the sutures are nearly all tied and the sponge removed; then I make a last trial of the tube. If the fluid amounts to $\frac{1}{2}$ drachm or more, and is bloody, I allow the tube to remain; if, on the contrary, the tube is nearly dry, or the contents is simply colored water, the result of the flushing, I remove the tube. Of course what has been done influences one in regard to drainage. I almost invariably drain after it has been necessary to flush. I believe the peritoneum is satisfied, to an extent, by the flushing, and will consequently neglect, in a degree, to absorb any remaining fluid. Experience seems to sustain that argument. Mikulicz drain is almost indispensable in a limited number of cases. Cavities may be packed with gauze which cannot be reached with a glass drainage tube. Hæmorrhages in cavities so packed will cease, when a glass drain would not avail. Operations are now possible with the Mikulicz drain which were impossible without it. The question about drainage is not, shall we drain? but how, and how often shall we drain?

To Prevent Intestinal Obstruction.—One in abdominal surgery is constantly watching the behavior of the intestines. They are our prominent point of attack in our preparatory treatment, they are our greatest source of anxiety during the operation, and upon their management after the operation much watchfulness is imposed. All of this anxiety is

caused by our desire (with the exception of care against wounding when operating) to prevent obstruction. It, therefore, is a point in the technique of this work to which discussion may profitably be directed.

The pathology of obstructions is well summed up by a recent valuable contribution on this subject by Dr. Ashton of Philadelphia, from which I quote.

"1. Adhesions between the intestines and raw surfaces.

(a) To an omental stump.

(b) To the edges of the vaginal wound following supra-pubic or vaginal hysterectomy.

(c) To a pedicle.

(d) To raw surfaces on the intestinal wall.

"2. Paralysis of the intestines.

"3. Local spasm of the intestines.

"4. Impacted feces.

"5. Bands of inflammatory lymph.

"6. Adhesions between coils of intestines or between the gut and neighboring parts, due to traumatic inflammation.

"7. Kinking or twisting of the intestines, due to faulty technique.

"8. Including the intestines within the loop of a suture of the abdominal wall, or between the edges of the abdominal incision.

"9. Slipping of a coil of intestine through a slit or an aperture.

Under the first head, "Adhesions between the intestines and raw surfaces," we must seek our remedy during and following the operation. Intestines should be handled and exposed as little as possible in order not to produce hyperæmia or denudation of their surfaces. An omental stump of any considerable size should be selvedged by inverting its raw edges with a running catgut, or with ligature. When denudations of the pelvic or intestinal peritoneum cannot be reinforced by a superabundance in the neighborhood, care should be taken to carefully arrange the intestines in as near the normal position as possible. A pedicle of large size should be covered by securing over its end the peritoneal covering with a running stitch. Raw surfaces of any considerable size on the intestines should be covered with an omental graft, with the edges well secured. Paralysis of the intestines may be avoided by emptying them thoroughly previous to operation of all irritating matter (which may ferment and cause distention) by rendering the contents aseptic by means of bismuth and salol, and the employment of full doses of strychnia to act as a muscular tonic. Carminatives, such as wintergreen, cardamon, etc., may also be employed as antiseptics and muscular tonics. During the operation the intestines should not be handled or chilled, in order to avoid paralysis. After the operation, nourishment of a non-fermentive and easily absorbable nature should be employed. The bowels should be stimulated to easy action in order to keep them empty and avoid the beginning of distention, which soon lead to paralysis. An early movement of the bowels, or free passage of flatus, too, assures a normal disposition of the bowels as regards location. If they adhere after such time, it will be in an advantageous, not cramped position.

A flat sponge beneath the abdominal wound, after carefully spreading down the omentum and before the wound sutures are inserted, will avoid including an intestine within the loop of a suture, or between the edges of the abdominal wound.

When ventral fixation is practiced, great care should be exercised in disposing of the intestines in such a manner as to avoid their slipping through the opening left between the uterus and the abdominal wound.

Pelvic Suppuration.—I think the more one operates and becomes familiar with pelvic suppuration, the more one is inclined, in dealing with such cases, to go into the abdomen to unravel the tubes and ovaries, the invariable (with rare exception) seat of such suppuration, and to make a sure thing of the case by removing them. In other words, while most of us might open a pelvic abscess of long standing which is pointing low in the pelvis, through the vagina, and drain it, we are pretty certain, from our surgical experience in the abdomen, that the other side, entirely disconnected with the first, is also suppurating. At best, we have only temporized, and must finish up at some other time, or allow the woman to go on suffering. I must confess that I have never found pus in the pelvis that was not directly traceable to the fallopian tubes. Again, I must confess that I have rarely found pus in one fallopian tube that both did not contain it. Case six in my year's work was a notable exception to this. The right side only was infected the abscess being enucleated with great difficulty, involving apparently the head of the cecum. The source of the infection was undoubtedly the appendix vermiformis. That, of course, takes it out of the category of strictly pelvic suppuration.

It is a comparatively easy matter to enucleate a tubal abscess after a little practice. Where we find one tubal abscess, we are liable to find two. When we go at these abscesses through an abdominal wound we can remove both sources of pus together with its walls and secreting surfaces through one opening. When the abscesses are removed in this way, the case is at once put in a position to get absolutely well in as short a time as she can recover from a laparotomy—say four weeks.

It is a comparatively easy matter to incise an abscess which can be felt through the roof of the vagina. It is an easy matter, after the pus flows out and the opening is dilated, to put in a drainage tube and wash out the cavity. It may be an easy matter for a nurse to continue this washing-out process for several weeks or months. It may not be necessary in all cases for the drainage tube to be worn for a long time; but, in a large percentage of cases, drainage for a considerable time is required, while in a few cases it goes on forever. Now after all this, but one tube is drained unless two incisions have been made. This is not often likely to be the case, as one side is more liable to appear prominent than both. The case is left unfinished, therefore, or at least, uncertain.

With our present light, then, considering that the immediate mortality is about the same with either operation, I should most emphatically favor the abdominal operation for pelvic suppuration, except, possibly, in very rare instances. As to what those rare instances might be, I am not quite clear.

AFTER-TREATMENT.

Immediate treatment consists in stimulating the patient out of any tendency to nervous shock which may exist. She is placed in bed and surrounded with dry heat. If there has been any considerable

loss of blood, the feet may be elevated in order to restore normal blood pressure in the brain. In severe cases of shock from loss of blood, it is well to bandage the blood out of the lower extremities by means of elastic bandages. A saline solution under the integument may assist to fill the blood-vessels. Oftentimes the difficulty is not lack of fluids so much as lack of tone, which allows a patient to bleed to death, as some one has put it, "into her own dilated capillaries and venules!" Here direct arterial stimulants and vaso constrictor remedies are called for, as well as strong nerve stimulants. In these cases, I immediately order hypodermics of nitro-glycerine, strychnine and digitaline. Stimulating enemata of whisky and warm water may also be given. What is done for shock should be done promptly, as patients who are allowed to go on for a few hours with a sub-normal temperature and high pulse, are with great difficulty recovered.

Dressing Tube.—The drainage tube, when it is allowed to remain, should be dressed the first time in one hour. If the fluid is more than a drachm it should be dressed again in an hour, if a drachm or less, the interval between dressings should be increased one hour, and the same rule followed until the fluid is less than a drachm and of a light amber color, and the interval from four to six hours. At this time the tube may be removed. If the tube is left longer than thirty-six hours, it should be carefully washed out with warm sterilized water before removal, and a piece of sterilized gauze left in its place for six hours—when the latter is removed and the wound is closed with slight pressure, and its closure is obtained by extra pressure of external straps.

Dressings.—The wound is closed with silkworm gut and dusted with iodoform, and the dressing is a thick one of iodoform gauze held in place by adhesive straps tight enough to take the strain off the sutures without puckering the integument. Over this is placed a good allowance of absorbent cotton, and all retained with a binder.

The dressings are not disturbed for four days unless there is pain or temperature. At the end of the fourth day, the dressings are carefully removed, and the wound is thoroughly but carefully washed with equal parts of 95 per cent. alcohol and 1-5000 bichloride solution. Iodoform is again applied and the dressings renewed. The seventh day, before the stitches are removed, I again have the wound washed in the same manner and, after their removal, dressed as before.

Bowels.—If flatus has not passed freely per rectum in twenty-four hours by the simple employment of the rectal tube, I employ the "One, one, one" enema,—one oz. of sulphate of magnesia, one oz. glycerine, and one oz. water. If this does not start the gas in two hours, I order it repeated in double quantities. If this enema is not retained, and flatus has not passed, I order an enema of soap and water one pint, with one-half drachm of turpentine. If they are still obdurate, I begin one-half grain doses of calomel in ten grains of bicarbonate of soda, given every two hours for four doses, or until gas passes, alternated with drachm doses each of gran. citrate of magnesia and sulphate of magnesia in an ounce of water. Following these remedies in one hour, another "One, one, one" enema is given. It must be an obstinate case indeed that will not yield under

the above remedies. If the stomach is irritable and will not tolerate the bicarbonate of soda, the calomel may be given dry on the tongue. Other salines may be substituted for the above if they are objectionable.

The bowels should be moved from above on the fifth day with small doses of some effervescent salt, or, if required, a more vigorous laxative.

Diet.—First week, fluids; second week, semi-solids; third week, semi-solid and solid food in small quantities; fourth week, good substantial food, with a few curtailments.

As soon as the patient is out of the anæsthetic, I begin to give hot water in teaspoonful doses as often as every fifteen minutes. If the stomach tolerates this, the quantity is increased to one-half ounce, and the interval may be increased in length. If the patient is nauseated and the hot water causes vomiting (and it should be hot water), or increases the nausea, it should be withheld. When the patient can take the hot water, and still complains of thirst and begs for cold water, the nurse is instructed to let her rinse her mouth with cold water. Ginger ale is a good alternate with water for the first twenty-four hours. After twelve hours, drachm doses of peptonized milk may be sandwiched with the water. If peptonized milk is offensive, plain sterilized milk may be substituted, or sterilized milk and lime water. Milk in some form, I feel to be the most perfect food. It should be increased every hour until 3ss. doses are given by twenty-four hours, to one ounce by forty-eight hours, and to two ounces by the end of sixty hours. Barley water may be alternated with the milk. Later, the monotony may be relieved with the meat and shell-fish broths, thin gruels, etc. The fourth or fifth day the patient may be allowed to extract the juice of broiled beef by chewing it; the fibre, of course, should be rejected. Tea may be given the second or third day as a relish. Orange juice, and the juice of other fruits, may be given in small quantities the third or fourth day. Rules cannot be laid down in regard to the diet of these patients, general principles only can be hinted at. The patient should be seen each day, and her wants studied. If stimulants are required, one of the best is good brandy. Champagne is all right if its sweetness does not make it objectionable. If patients are unable to retain enough by stomach to properly nourish them, enemata of either plain milk or stimulants should be resorted to.

Getting Up.—Uncomplicated cases are gradually bolstered up until they can sit in a bed with a bed-rest at about the fifteenth or sixteenth day, sit up in a large chair at the twenty-first day, and leave the hospital from the twenty-eighth to the fortieth day.

CASES.

Case 1.—Mrs. F., age 40, came to me suffering with uterine hæmorrhages because of uterine fibroids. The whole tumor, including the uterus was not more than a half larger than a normal uterus. The body of the uterus contained three distinct centers of development of small fibroids projecting into the peritoneal cavity. Electricity was employed on the case but without accomplishing more than a tonic effect because, undoubtedly, of the multiple development. Like all tumors of this sort, there was great suffering at the menstrual period, as well as during the intra-monthly period. The removal of the appendages was at last decided upon as being likely to give the best results with a minimum risk. August 26, 1891, the operation was performed at the Woman's Hospital. The woman made a slow but complete recovery and now, more than a year after the operation, is in perfect health.

Case 2.—Mrs. P., age 30, was referred to me by Dr. A. H. Burr, of this city, because of distressing pelvic trouble, accompanied with an enlargement in the left side. Her attacks of pain were periodic, and there was a history of one or two attacks of peritonitis. Specific infection was not altogether out of the question in the case. Laparotomy was agreed upon as the best method of getting at the real difficulty, and of removing it when it was revealed. She was taken to the Woman's Hospital, and the operation performed August 29, 1891. The incision revealed a cystic ovary on the right side as large as one's fist, with an enlarged and suppurating tube on the same side. The opposite tube was enlarged, suppurating and adherent. The recurrent peritonitis having been caused, without doubt, by leakage of the tube. The cyst of the right ovary had been conveyed by infection from its corresponding fallopian tube. The infection was undoubtedly gonorrheal. The patient made an ideal recovery, and is now a perfectly well woman.

Case 3.—Mrs. H., age 35, was referred to me because of a tumor developing in the left side. It had been noticed for a year. It was accompanied with considerable pain. She was sent to the Woman's Hospital, and was operated upon September 14, 1891. An ovarian cystoma the size of a large cocoanut was removed from the left side, and the appendages of the right side, because of a small cyst of that ovary. The patient's recovery was perfect, without an untoward symptom.

Case 4.—Mrs. B., age 28, with large ovarian cyst, came to the Woman's Hospital for operation, and was operated upon Sept. 16, 1891. The multiple cysts contained about twenty pints of clear fluid, and after emptying it, it was easily tied off, no adhesions, no drainage. The woman recovered from the operation without symptoms, and was discharged cured, in four weeks. The removal of every small or medium sized cyst of the ovary carries its lesson, viz: the advisability of not waiting until they get large, produce pressure, and irritation, and consequently form adhesions. Early operations should be advised for all abdominal tumors.

Case 5.—Mrs. K., aged 32, was operated upon for large cystic ovaries. The symptoms were, pelvic pressure, and severe pain in ovarian region. The patient is the mother of two children, and the victim of one or more miscarriages. The uterus was retroverted. The operation was performed the latter part of September, 1891, at the Charity Hospital, Dr. Tanquary, house physician of the Post-Graduate School, assisting. The ovaries, one of which was as large as a goose egg, and the other as large as a hen's egg, were removed, with the tubes, which were large, inflamed, but patulous. The uterus was elevated, anteverted, and fixed to the abdominal wall. The patient made an ideal recovery, and was discharged from the hospital on the twenty-eighth day. She was seen several months later at the Post-Graduate clinic, and her symptoms had disappeared, the uterus was high in the pelvis and in its normal position.

Case 6.—Mrs. A., age 35, was operated upon at the Charity Hospital, October 14, 1891, for the removal of a small ovarian cyst. The uterus, which was in a retroverted position, was corrected, and ventral fixation was performed. No drainage necessary. The patient made a perfect recovery and left the hospital in four weeks.

Case 7.—Miss H., age 23, came to the Woman's Hospital for a severe distress in the right side in the ovarian region. Upon examination, I found a mass as large as an orange in the region of the right appendages, which gave an indistinct sense of fluctuation. Pyosalpinx, accompanied by retroversion of the uterus was the diagnosis. Laparotomy was performed October 27, 1892. I removed a diseased tube filled with pus from the right side. The other tube was apparently healthy, and left intact. The uterus was anteverted, the adhesions broken up, and the ventral fixation made. In enucleating the right tube, which was accomplished with great difficulty, I denuded about two square inches of the large bowel (the cæcum, I believe, with the vermiform appendix) of its serous coat, and while operating, about four ounces of pus flowed from a tear in the abscess sac into the peritoneal cavity. The cavity was carefully washed out with large quantities of sterilized water, and the denuded portion of the cæcum covered with an omental graft. Drainage tube was employed, which was removed in forty-eight hours. The patient recovered without rise of temperature, and without an untoward symptom. The specimen, on examination, proved to be an appendicitis which had produced a localized peritonitis, and at the time of extension had infected the fallopian tube. The opposite tube and ovary were left intact. The lady has

since married, and is at present about five months in pregnancy.

Case 8.—Mrs. J., referred to me by Dr. Crawford, of Iriquoit, Ill., aged 37, four children, had a large cystoma of the left side. She was operated on October 17, 1891, at the Woman's Hospital. The case was uncomplicated, the tumor was removed without difficulty, and the recovery was without incident. Twenty pints of straw colored fluid was contained in the cysts.

Case 9.—Mrs. T., aged 37, mother of seven children, patient of Dr. Lodor, of this city, came to me for advice, and was referred to the Woman's Hospital for operation. She had suffered with severe pelvic pain for several years, and profuse and exhaustive menorrhagia. The pelvic trouble seemed to have a direct tendency to aggravate a grave mental disturbance which almost reached the dignity of a mania. The uterus was retroverted, and firmly adhered. Laparotomy was decided upon, and was performed October 19, 1891. Upon opening the abdomen I found disease of the appendages, and a cyst of the left ovary. Removed the cyst and appendages of both sides. Anteverted the uterus and fixed it to the abdominal wall. Dr. Robinson's report on these specimens is as follows: "In this case the tubes are convoluted, and studded over with blisters or peritoneal sacs, containing cloudy fluid. The blistered tubes, Mr. Tait tells me, come from women who suffer much pain. The tubal wall had a typical hernia of one-half inch. The probe entered it from the tubal lumen, and the point shoved itself under the peritoneum. The pathology of these tubes is: first, spiral convolutions, which show reversion to fetal type; second, blisters on the tube; third, hernia of the tubal wall. All else is normal. The left ovary is normal, the right distinctly pathological."

Case 10.—A young lady, about 30 years of age, unmarried, was referred to me by Dr. Brinkerhoff, of this city, with a history of peritoneal inflammation, excessive pain, and a tumor in both broad ligaments. She was advised to have an operation, and a laparotomy was performed at the Woman's Hospital, October 26, 1891. The principal point about the operation was the difficulty of enucleating the tumor. Upon opening the abdominal cavity, there was found an agglutinated mass which appeared almost impossible to unravel, and over an hour was consumed in removing the tubes. Drainage was necessary. The recovery was ideal. Dr. Robinson's report on the pathology is as follows:

"This is a remarkable specimen. It shows tubes and ovaries in a marked edematous state. The right ovary is dilated to the size of a plum in one of its cysts. Its peritoneum is covered by recent and old lymph shreds. The ovarian cyst lies right at the mouth of the fimbria and the infection was over the ovary. The tube is a still more remarkable specimen. It is thicker than the thumb. It is very edematous. Its peritoneal covering shows lymph shreds, and old and recent peritonitis. The tubal walls are one-fourth inch thick in places. The tubal lumen is dilated so that it will admit the little finger in the left tube, and a lead pencil in the right. The tubes are both alike diseased, and show the distinct results of an infectious disease of long and slow progress. The fimbria and both tubes are fairly well destroyed. I think this is gonorrheal infection."

Case 11.—Miss M., age 28, had a fatty tumor removed from right breast some time before. November 9, 1891, ovariectomy was performed for cysts of the ovary. No drainage. Patient recovered without interruption. Highest temperature, 100.2° on the sixth day.

Case 12. Ovariectomy. Recovery.—The following case, with its eventful history, I copy in full from my work on "Electricity in diseases of Women," page 147:

Miss A., age 28, was referred to me by Prof. W. H. Byford three years ago for galvanic treatment of a bleeding fibroid which measured five inches in depth. The uterus was partially retroverted and immovable. The hemorrhage was confined to the menstrual period, however, materially lengthening the duration and quantity of the flow, until the patient was extremely anæmic and weak. Besides hemorrhage, severe pain from pelvic pressure was complained of, and the patient was completely bedridden. She had been under the care of the physician who sent her to me for several months, and all medical treatment, including a systematic course of ergot, had been thoroughly pursued with a constant increase of symptoms.

The uterus measured five inches in depth and was a fair example of simple interstitial fibroid, developed uniformly throughout the tissues of the uterus, enlarging that organ to a smooth, oval, regular mass, resembling a four and one-half months pregnancy. It was slightly retroverted, the

axis occupying a line parallel with the axis of the body. From repeated inflammatory attacks it had become adherent and immovable.

Treatment was at once begun at the Woman's Hospital. During the early portion of the month the platinum electrode, covering the entire length of the uterine canal, was employed as the negative pole. Treatments given every other day. The last of the month the whole canal was covered once, by means of my concentration electrode five mm. in diameter and a surface of four square cm.

The effect of this was to check excessive menstruation and at the same time rapidly reduce the tumor. The treatment was continued for about four months. The growth reduced rapidly in size, the hemorrhage became less and less severe at menstruation, and when the treatment had been employed for three months, the inflammatory exudate surrounding the uterus had become so thoroughly absorbed, that the organ was freely movable. The treatment was continued until the uterus was near its normal size and could be retained by means of a Hodge-Smith pessary. At this time I requested the patient to return to Prof. Byford and ask his opinion on the advisability of shortening the round ligaments. He examined her and expressed complete surprise at her changed condition, recommending the operation for which she had sought advice. It was accordingly performed, and since that time she has been perfectly free from the old symptoms.

In October, 1891, she again consulted me for a severe pain in her left side. Upon examination I found a small tumor about the size of an apple growing in the left ovarian region. Laparotomy was advised. In November, 1891, in the presence of the class of the Post-Graduate Medical School, assisted by Dr. Eibelberger, of Sioux City, Dr. A. R. Small, of this city, and the Woman's Hospital house staff, I opened the abdomen and removed a small ovarian cyst. Upon inspection the uterus was absolutely normal in size. Its external diameters, as nearly as could be judged, were three, by two, by one and one-half inches. It was held well forward by the round ligaments.

Case 13.—Miss B., age 36, was referred to me by Dr. A. R. Small, of Chicago, because of a large abdominal tumor. A laparotomy was performed at the Woman's Hospital November 12, 1891. A large cyst of the right broad ligament, or of the ovary developed into the ligament, was found, filled with about twenty pints of thick, transparent, gelatinous, semi-solid material, which had to be scooped out with the hand. The exterior of the cyst, the omentum and the intestines were covered with papillomatous growths. It was impossible to enucleate the cyst from the broad ligament. It was drawn into the abdominal wound and superabundant portions of the cyst removed, the remaining portion was stitched into the lower angle of the wound and filled with an iodoform drain. The patient made an uninterrupted recovery, and at this date, eighteen months afterward, is feeling well.

Case 14.—Mrs. S., age 52, seven children, referred to me by Dr. Eibelberger, of Sioux City, Ia. Diagnosis, multiple cystoma. Upon operation it was found that she had multiple cysts of both ovaries. The one on the right side was buried in the broad ligament and covered completely with four or five coils of adherent intestines, and in the centre of the mass was buried the cæcum. In enucleating and separating the cysts in order to remove them, I came upon an abscess of the vermiform appendix containing about two ounces of pus. I succeeded in enucleating the tumor, but in the process of separating it from the cæcum about two square inches of the peritoneal coat of the bowels adhered to it. The appendix was removed, and the denuded bowel covered with peritoneum. After washing the abdominal cavity thoroughly, the incision was closed without drainage. Recovery perfect.

Case 15.—Mrs. S., aged 31, three children, married nine years, referred to me by Dr. Garceau, of Chicago. Suffered excruciating pain in ovarian region. Has had three distinct discharges of pus from the uterus in the last three years.

December 16, 1881, laparotomy was performed and the tubes of both sides were, with great difficulty, enucleated. A glass drainage tube was employed for forty-eight hours. Highest temperature after the operation was 100.5° on the second day following. Patient left hospital the 25th day after operation. She is now practically well. The following is a result of a critical examination of the tubes by Dr. Robinson:

"These tubes show a double pyosalpinx. The tubes show a perisalpingitis. Old inflammatory deposits exist on its outer peritoneal coat. The muscular walls are much thickened by inflammatory products. The mucous membrane is

thickened and it is becoming smooth from old continued pressure of its fluid contents. The cilia are no doubt obliterated. The tubal lumen is dilated as wide as the little finger. The fimbriated extremity of the tubes are cemented to the ovary, and the tube opens into the ovary. The ovaries are cystic, they are cystic because the tubes carried infection into them and started disease. Many cystic ovaries arise from the fact that the tubes carry infection to them, therefore, cystic ovaries are often secondary to tubal diseases. We may say that ovarian cysts become infected with pus from 1st, the fallopian tubes; 2nd, from the intestines by diffusion of gasses, and 3rd, from the bladder. These tubes, in my estimation, are a typical example of gonorrhoeal pyosalpinx. They show a slow, progressive infectious catarrhal process. This diseased process has advanced to the muscular walls of the tube and to its peritoneal covering. This gonorrhoeal process has advanced into the broad ligament and caused the appearance of inflammatory products. The disease has progressed in all directions around the tube, but especially from its fimbriated end. Gonorrhoea is a slow, progressive, infectious catarrhal disease. It is not limited by space or time. Its home is the cylindrical epithelium. It seems to be checked by squamous epithelium, and that found in the peritoneum, and it does not progress well in connective tissue."

Case 16.—Removal of appendages of both sides and hæmatocele of ovary or tube. Drainage. Recovery.—Mrs. C., children eight, miscarriages one, youngest child 17 months old, was referred to me by Dr. Robt. Dodds for operation for some kind of pelvic tumor. She had menstruated twice since child was born, and had suffered very severely in pelvis for two or more months. I operated on December 26, at the Woman's Hospital, assisted by Drs. Dodds and Braunwarth. Upon opening the abdomen a quantity of black thick blood welled out. Upon examination I found that an hæmatocele about the size of a large orange had ruptured, which had its location posterior and to the right of the uterus and which had found firm attachment with the extremity of the right fallopian tube and the right ovary. The hæmatocele had well defined walls but the contents had been entirely expelled. I strongly suspect that it was a case of ectopic gestation. The walls of the hæmatocele with the ovary and tube were carefully enucleated, leaving a considerable raw surface which had to be drained. A glass drain was employed.

The case made an uninterrupted recovery, the highest temperature reached being 101° on the third day, and the patient left the hospital on the 28th day.

Case 17.—Removal of appendages of both sides for severe pain in ovarian region, much aggravation at menstruation. Diagnosis, Salpingitis.—Miss F. H., age 29, operation January 8, 1892, for removal of appendages. No drainage. She had severe pain in right side for a number of years. She had excessive pain at menstruation, which prevented her working. Recovery after operation uninterrupted. Dr. Robinson's report is as follows:

"The right tube is a typical specimen of a contorted, convoluted tube. It shows spiral or angular twisting. It is so bent as to show 'V' or 'S' shaped figures. It must be noted that the peritoneum does not dip down between the tubal convolutions, but it simply stretches from one knuckle of the tube to the other. The reason that the tube can coil up without drawing the peritoneum with it is because the peritoneum in the broad ligament is very loosely applied to the tubes. A year ago I called special attention to the idea that women with twisted tubes suffered at menstruation from premenstrual pain or tubal colic. This is a typical case to prove the correctness of the view. Convoluted tubes are simply a tendency to reversion of the foetal tubes. In foetal life the tubes are coiled up like a cork screw. It is mostly due to irregular involution of the tubes after labor, because the longitudinal muscular fibres of the tubes involute irregularly. This tube has an accessory ostium and an accessory tube which is, no doubt, one of Kobelt's tubes. Three little parovian cysts exist at the fimbriae in the usual locations. Ovary normal.

The left tube is a remarkable example of stricture with dilatation on each side. The stricture is in the ampulla. It would admit only a small fine probe. The dilatation on each side of the stricture is about the size of a bean. This obstruction was, no doubt, another source of premenstrual pain, or tubal colic. The peritoneum did not dip down into the tubal convolutions at the stricture. There is a parovarian cyst. Ovary normal. Parovarian cysts exist in most women after sixteen years of age, as then the congestion of the puberty gives the Wolfian remnants of the parovian an

impulse to grow. The mucous membrane appears normal."

Case 18.—Removal of the appendages for catarrhal salpingitis. Recovery.—Mrs. J., age 34, two children, two miscarriages. Has been in miserable health since first miscarriage. Menstruated profusely, regularly, and with considerable pain. A constant lateral pelvic pain is present.

Operation.—Laparotomy with the removal of the appendages of both sides. Adhesions existed and careful enucleation was required; the oozing from the raw surfaces demanded a drainage tube. The tube was removed the next day. The highest temperature after the operation was the temperature of reaction occurring the second day, which was 102°. The following is Dr. F. B. Robinson's report on the microscopical appearance of the specimens:

"Both tubes present dilations of their lumen in the ampullar part. The tubal wall is thinned. The left tube shows a double ostium. The peritoneum shows blisters where it covers the tube. The pathology of the tubes consists in the irregular, widely dilated lumen. At places the calibre of the tube is four to six times as large as normal. This gives the tube a sacculated form. The dilatation must have arisen from catarrhal disease or the accumulation of secretion. The mucous membrane appears normal at present. The fimbriae look normal. The left mesosalpinx has four parovarian cysts. One can prove that they are parovarian by stripping the peritoneum from them, and also because there are no warts on the inside of the cysts. This excludes them from being cysts of the lumen. Both ovaries normal.

Case 19.—Removal of large, adherent, suppurating fallopian tubes. Recovery.—Miss P., age 29, was referred to me by Dr. Garceau, of Hyde Park, this city. She had been suffering for years with constant pelvic pains which were markedly aggravating at the menstrual period. She was a young lady who was obliged to earn her own living, and it was with greatest effort that she could keep about her work. Upon examination I found large indefinite swellings on either side of the uterus, and the case was diagnosed pyosalpinx.

January 6, 1892, assisted by Drs. Bacon and Braunwarth, I performed laparotomy, and with considerable difficulty succeeded in enucleating two large suppurating tubes with cystic ovaries. A glass drainage tube was left which was removed on the second day following. The highest temperature was on the second day, after the operation, reaching but 100.45°, afterward remaining normal. She made an ideal recovery, and left the hospital on the twenty-eighth day.

Case 20.—Removal of double pyosalpinx by laparotomy. Recovery.—Mrs. B. was referred to me by Dr. Joseph B. Bacon. She was 36 years of age, twice married, and had never borne children. There was a vague history of two miscarriages. For the two months before consulting me she had menstruated almost constantly. Has not been in the habit of suffering much at menstruation. Complains of a severe pelvic pain of an aggravating character and of constant duration. Upon examination distinct enlargement of both appendages was noticeable, and extreme tenderness of the parts existed.

January 28, 1892, assisted by Dr. Bacon and Dr. Braunwarth, I succeeded, with considerable difficulty in pulling out the large suppurating tubes with cystic ovaries. The patient made an ideal recovery.

The following is an interesting report on the specimen removed:

"The right tube presents a typical perisalpingitis. It is almost entirely covered by ancient remains of peritonitis. The perisalpingitis at one time must have been very severe, as the tube, even when practically recovered, was covered by woolly deposits of old lymph shreds. The tubal wall is irregular at its ampullar end. The tubal mucous membrane appears degenerated in the ampullar end. The lumen of the tube is dilated at its outer end. The fimbriae are not healthy in appearance, and the tube possesses a double ostium. The inability of the deficient double ostium to grasp the ovary may explain her sterility. There is a small parovarian cyst. There also exists a predundulated parovarian cyst with a 1½ inch pedicle.

"The ovary has an enlarged graafian follicle which seems to have been gradually filled by successive deposits of blood layers. The cyst is as large as a plum.

"The left tube shows a beautiful specimen of tubal hernia. The ampulla is dilated. The walls thinned. The mesosalpinx was oedematous and the blood vessels over the tube in the peritoneum are much impeded. The fimbriae and ovary show where they were once adherent from inflammation. The fimbriated extremity was fastened on to the ovary in

one place so that it could not move. This again explains her sterility. One quarter of an inch from the abdominal ostium is a typical tubal hernia on the tube at the point most distant from the mesosalpinx. This is the usual location of hernia. Tubal hernia is where the mucous wall of the tube is separated and allows the mucous membrane to protrude against the peritoneum covering the tube. Tubal hernia may furnish an opportunity for tubal pregnancy, as the ovum may lodge in the hernia pocket and the cilia be unable to whip it forward to the uterus. These tubes present the appearance of having been attacked by some limited infectious disease which aided in their gradual dilatation and apparent degeneration of the mucous membrane. The disease was not like gonorrhoea, as that is an unlimited, progressive, infectious disease which especially effects the mucous membrane by continuous thickening and inflammatory deposits. Her sterility is explained by the inability of the fimbriae to adapt themselves to the ripened ova, as one fimbria was fixed locally in an ovary, and could only get the ova that shed under its mouth. The other fimbria, owing to its double ostia and a band of tissue (tubal) between the ostia, could not secure an egg from the ovary. The left ovary is normal. This case shows that a woman's ovary varies in size about as much as the breast."

Case 21.—Hematoma of ovary and double pyosalpinx. Laparotomy and enucleation. Recovery.—This patient, unmarried, age 31, came to the Woman's Hospital, referred by her family physician, for the purpose of having an operation. She was in an extremely nervous state, hysterical, anæmic, and a great sufferer from headache and severe pelvic pain during menstruation. The menstrual flow was irregular and of long duration. Upon examination an extremely sensitive uterus was found, and on the left side was a large indistinctly defined mass. This was of a semi-fluctuating nature and extremely sensitive. On the opposite side was a tender ovary and tube.

On January 26, 1892, assisted by Drs. Bacon and Braunwarth, I performed laparotomy and removed by enucleation a large hematoma of the left ovary, and removed the appendages of both sides. A glass drainage tube was found necessary. The drainage tube was removed at the end of forty-eight hours. The patient recovered without symptoms, except suppuration of one or two of the abdominal stitches.

The patient was seen by me October 11, 1892, and she had been almost entirely free from all of the old symptoms, much to her gratification.

Case 22.—Removal of diseased appendages in a case of multiple fibroid of the uterus. Recovery.—Mrs. D., age 40, consulted me for excessive and painful menstruation, and a distressing bearing down pain. The woman had borne children, had had no miscarriage. Upon examination I found a uterus about the size of a coconut with several subperitoneal projections. On either side of the enlarged uterus could be felt large and tender masses which resembled suppurating tubes.

On February 2, 1892, assisted by Drs. Bacon and Braunwarth, I opened the abdomen and removed what proved to be suppurating tubes of either side. My diagnosis of multiple fibroid was confirmed. The uterus was not removed because it was small, the removal of the appendages being considered sufficient. The patient made an uninterrupted recovery with the exception of one or two stitch hole abscesses.

Four months after the operation the patient reported in a much improved condition although she had menstruated regularly.

Case 23.—Removal of appendages for pyosalpinx. Recovery. This patient, Mrs. H., age 28, one child, consulted me at the Woman's Hospital because of severe pelvic pains, much aggravated at menstruation, accompanied with universal sympathetic reflexes. Upon examination I found lateral pelvic enlargements which were plainly suppurating tubes. As she had gone through, for a period of three years, all the less radical treatment, I recommended laparotomy.

Accordingly, on February 27, 1892, assisted by Drs. Bacon and Braunwarth, I removed her diseased tubes and cystic ovaries. No drainage. The patient made an uninterrupted recovery.

Case 24.—Double oöphrectomy for multiple fibroids of the uterus. Recovery.—Miss Y., age 40, menstruation normal in quantity but excessively painful, consulted me at the Woman's Hospital in March last. I found on examination a multiple fibroid filling the pelvis, and wedged in such a manner that I suspected that the severe lateral pain complained of was caused by the pressure of the enlarged uterus.

The woman had suffered for years with severe sacralgia, lumbar and bearing down pains.

March 22, 1892, assisted by Drs. Bacon and Braunwarth, I removed the appendages. The woman convalesced without incident and is in comparative good health at this date.

Case 27.—Removal of appendages for pyosalpinx. Recovery.—Mrs. H., age 30, two children, consulted me for severe pelvic pain for which she could not get any relief. Upon examination I found tumors lateral to the uterus on either side. My diagnosis was pyosalpinx.

March 23, assisted by Drs. Bacon and Braunwarth, I removed two large pus tubes. No drainage. The recovery was uneventful. Two months following the operation, the patient was perfectly well.

Case 28.—Extra uterine pregnancy, removal. Recovery.—Mrs. H., age 25, married one year, consulted me for severe pain in her left side. She had been seen previously by my friend Dr. Doering, who referred her to the Woman's Hospital. She had suffered with pain in her left side for the last six weeks. There had been scanty menstruation the previous month. Tubal pregnancy was suspected, although not positively diagnosed. There was a tumor in the left side the size of a large orange, which was easily defined in a preliminary examination under ether.

April 2, assisted by Drs. Bacon and Braunwarth, I opened the abdomen and removed the tumor. Upon opening the peritoneum, several ounces of black thick blood flowed out. The tube was ruptured, and adhesions had occurred in the broad ligament. The whole broad ligament was elevated and ligated with silk below the tumor, and the tumor cut away. No drainage was necessary, and the recovery was ideal. Following is a report of the macroscopical appearance of the specimen, as told by Dr. F. B. Robinson:

"Only one tube and ovary are present in the specimen. The other is all crumbled. The ovary is cystically degenerated, some cysts are as large as an inch across. The tube shows a very interesting object. In the outer end of the tube is a tumor $\frac{3}{4}$ of an inch long and $\frac{1}{2}$ of an inch thick. It has membranes around it, but in the centre, it is a spongy blood clot. It is I think, an ectopic pregnancy. The tumor is hard and firm. The tumor gradually dilated the tube until the wall in the most distended portion had but little muscle left. The tubal plicae were so stretched that they showed in distinct rows with creases between them. The fimbriated end of the tube was simply hypertrophied, especially in its mucous membrane, and though inflammatory attempts had been made to close it, the attempts had not yet closed the end. From the unclosed condition of the fimbriated end arises a peculiar condition. The condition was, that on the anterior side of the mesosalpinx there was an organized blood cyst of a very distinct and hard character. Considerable force was necessary to detach it from the broad ligament. It appears that this blood clot came through the unclosed fimbriated end of the tube and organized itself on the anterior side of the broad ligament. Very likely at the time this hemorrhage occurred it caused the death of the embryo in the tube. The pain complained of in this region was likely the growing tumor. I could see no change in the uterine end of the tube. This case illustrates the assertion that I have frequently made to the effect that all ectopic pregnancies do not require an operation. Many get well by the fetus dying in the tube. Others get well by the rupture of the tube and the hemorrhage kills the fetus, but the hemorrhage stops before it has done much harm. Others get well by tubal abortion and the fetus is absorbed. If the rupture of the tube occurs between the mesosalpinx the elasticity of the broad ligament connective tissue checks hemorrhage. No doubt most tubal pregnancies rupture in the part of the tube uncovered by the peritoneum because it is the direction of the least resistance. This tube was also interesting as it contained three extra fimbriated tubes springing from the mesosalpinx. This is especially interesting as it shows clearly that the origin of these extra fimbriated tubes are distal remains of the parovarian. They are simply Kobelt's tubes tufted at the end. They are fimbriated Kobelt's tubes, but they, curiously, are so much like the fimbriated end of the fallopian tube that some call them accessory fallopian tubes; but they are scarcely even hollow. The reason I could see that these Kobelt fimbriated tubes sprung from the mesosalpinx is that there was a broad ligament cyst in this specimen $\frac{3}{4}$ of an inch in diameter, and from the most distended part of this parovarian cyst spring the accessory fimbriated tubes. They were entirely away from the fallopian tube. The method of knowing a broad ligament cyst is very simple. One can peel it out from its bed in the broad ligament. It is distinctly separate from

the broad ligament. The cyst contained a jelly like fluid with some cheesy matter.

Case 27.—Mrs. B., colored, aged 31, one child, consulted me at the Woman's Hospital Dispensary. She complained of pain which had been present since the birth of her child, and from which she had not been able to get relief after passing through the hands of a number of physicians. Pain more severe in right ovarian region. Has severe backache, her dysmenorrhea continuing throughout the flow. Upon examination, I found marked tenderness in the region of the appendages, and a tumefaction in the right side.

April 12, 1892, I performed laparotomy and removed the appendages of both sides. The tumor of the right side was a markedly enlarged ovary which was subsequently found to contain pus. The tubes of both sides were infected. From the apparently progressive nature of the infection it was supposed to be of specific origin. No drainage was employed, and the recovery was prompt and ideal. Patient left the hospital June 2.

Case 28.—Mrs. McL., age 31, two children, no miscarriages. I was called to see her by her family physician, Dr. McGowan, of Chicago, because of severe and unaccountable attacks of pelvic pain through the ovarian regions, which had been troubling her for some time. The pain was of such a severe type that chloroform to the point of narcosis was the only remedy which would relieve it. She was of an extremely nervous temperament, and manifested strong hysterical tendencies. I found a deeply lacerated cervix, and what I diagnosed as probable tubal infection with ovarian complication.

She was taken to the Woman's Hospital and the cervix was operated upon. While at the hospital she had several attacks of pain and was obliged to resort to chloroform for relief. While under ether for the cervix operation, I examined the pelvis, but could find no indication of marked pathological changes.

May 3, 1892, I performed laparotomy and removed the appendages. She recovered without abnormal temperature, and left the hospital on the twenty-eighth day. While she recovered from the operation, her symptoms were not materially changed. The following is Dr. Robinson's report on the appendages which were removed:

"Mrs. McL., May 3, 1892. Left ovary normal except a bean size of graafian follicle filled with a hard blood coagulation. Left tube was very much atrophied, mucous membrane healthy but shrunken, muscular wall much shrunken. The tube was very spiral. It was contorted, convoluted, and lying curled up in a bed of healthy connective tissue entirely loose from the peritoneum. The spiral condition of the tube explained the tubal colic, or premenstrual pain. There was an accessory fimbriated tube $\frac{1}{2}$ inch long. It was simply a tube of Kobelt. A few parovarian cysts of duck-shot size were found. The right tube and ovary were about an exact type of the left, only they were far more atrophied and the tube far more convoluted. An accessory fimbriated tube of Kobelt existed. The tubal lumen was extremely small. The tubes were much superinvolved, and that accounts for the steadily decreasing menstrual flow."

Case 29.—Miss X., age 19, referred to me by Dr. —, of Miles, Ia., for pelvic distress, amenorrhea, and pelvic enlargement. Examination under ether revealed a tumor about the size of a goose egg in the left ovarian region. Laparotomy was performed May 4 at the Woman's Hospital. The tumor proved to be an ovarian cyst. The opposite ovary being cystic, it also was removed. The patient made a perfect recovery, and left the hospital June 8, 1892.

Case 30.—Mrs. Y., age 22, no children or miscarriages, consulted me about April 1, 1892. Menstruation irregular, occurring in five, six, seven, eight or nine weeks. Complaints of pain in back and lower part of abdomen. For the last year has had a great deal of bearing down pain. Severe pain in both ovarian regions. Has had a severe bronchial cough for a year. Upon examination I found an enlarged uterus about the size of a two months pregnant uterus. The tumor was soft, and the cervix large, elongated and soft. The appendages, large and sensitive, were easily felt. The patient had not menstruated for three weeks. Being suspicious of pregnancy, I ordered her to bed, and while building her up, decided to employ no active treatment until the next menstruation appeared. Menstruation appeared again and was very profuse, and lasted more than a week. This seemed to clear up the matter of pregnancy, and make a certain diagnosis of rapidly growing fibroid with diseased appendages. The diseased appendages, together with the age of the patient, decided me in favor of oöphorectomy

and against electricity. May 6, the laparotomy was performed at the Woman's Hospital. Both tubes were distended, presenting the appearance of typical non-adherent pus tubes. The uterus was about the size of a three months gravid uterus. The appendages were removed. The recovery from the operation was without incident.

Case 31.—Mrs. O. S., age 23, one child five years old, came to me for examination April 27, 1892. She had a large solid tumor filling the lower abdomen to three inches above the umbilicus. Upon careful bimanual manipulation, it was diagnosed as of ovarian origin. Laparotomy was performed at the Woman's Hospital, May 18, 1892. The growth, a large, solid ovarian tumor, after separation from the several adhesions, was removed without difficulty. No drainage was necessary, and the patient recovered without incident, and left the hospital in twenty-eight days.

Case 32.—Miss L., age 15, was referred to me because of pelvic trouble associated with epilepsy. The patient began to have "fits" at the time of puberty, about two years ago. While the attacks were not always coincidental with menstruation, they were much more liable to occur at that time, and were more severe in character. Upon examination of the pelvic organs, I found enlarged appendages and excessive tenderness to pressure over the right ovary. Laparotomy was recommended, first, on grounds of diseased appendages, second, because of epilepsy. The patient was therefore operated upon at the Charity Hospital, May 21, 1892. The tubes were practically normal, although hyperæmic, both ovaries were covered with small cysts, and the right contained an abscess containing a couple of drachms of pus. The girl recovered from the operation without abnormal temperature, and was ready to leave the hospital in four weeks. It is too early to make any forecast as to what the outcome of the operation on the epilepsy will be. The removal of the appendages was justified by the pathological condition found.

Case 33.—Mrs. R., age 28, consulted me in March or April, 1892. Puberty at 15 years of age, been married five years, has one child four years of age and has had two miscarriages, the last one two years ago. Menstruation is painful but not profuse, lasting about five days. The amount of the flow has decreased in the last two years. Severe pain in pelvis, localized on left side and extends down to the left limb. Upon pelvic examination a growth was discovered on the left side in the ovarian region. The tumor was movable and painful, and the appendages of the right side were tender to pressure and appeared enlarged. Endometritis existed, with a semipurulent discharge from the uterine canal. The patient went to the Woman's Hospital, and May 25 I curetted and packed the uterus. June 1 I did a laparotomy and removed a small ovarian tumor from the left side and a cystic ovary and tube from the right side. Examination of the specimen is given in the appended report. The patient made an uninterrupted recovery with the exception of a small stitch hole abscess which developed at the end of two weeks. Three months after the operation the patient declares that she is perfectly well.

Dr. Robinson's Report.—"The left ovary has a dermoid cyst about the size of a turkey egg. It contained hair and sebaceous matter. A curious feature about this dermoid cyst was that it had apparently extended its sebaceous matter into several graafian follicles and in this manner it became multilocular. The whole wall of the ovary was so stretched as to part a portion of the wall of the dermoid cyst. The central portion of the walls of the ovarian follicles was atrophied, and thus a large round hole opened from the dermoid cyst into the graafian follicles. Through this aperture the sebaceous matter, hair (skin appendages), etc., had extended. The hairs were some $\frac{1}{2}$ inch long and similar in structure to those on the scalp. The wall of the dermoid was very tough and leathery. Its wall was not uniform in thickness. The inside of the dermoid and follicle cysts were of a shining and glistening appearance. The rapid growth of the dermoid had involved in its wall nearly every ovarian follicle. On the wall of the dermoid, which was a part of the ovary, was an old graafian follicle the size of a plum full, of hard, solid blood coagulation. It is somewhat rare to find the pulsatious matter in a dermoid cyst usurping the surrounding graafian follicles, by penetrating the walls of the ovarian follicles. But it is probably explained by the rapid growth of the dermoid with its accumulating contents. A dermoid tumor is a cyst containing skin or mucous membrane, or skin, as hair, teeth, glands, nails, nipples, etc. Dermoids are remnants of past life and development, and are apt to occur where apertures have existed in

the body, as at the pharynx (old gill slits). They also occur at the rectum (remains of the post anal gut). They also occur in the ovary, but this is explained by the idea that the germinal epithelium of the ovary arises from the peritoneum. Dermoids are generally slow in growth.

"The left tube was spirally contorted. It was convoluted and twisted. The peritoneum did not dip down into the convolution but stretched across them. There was extensive healthy connective tissue surrounding the tube. The tubes lay curled up in a healthy connective tissue. The spiral angulations of the tube accounted for painful menstruations. The constriction in spiral tubes causes tubal colic, or premenstrual pain. The muscular wall of the tube appeared normal. The mucous membrane was healthy. The parovarian had a few dilated cysts.

"The right ovary was normal, except that a graafian follicle was found about the size of a plum, filled with a hard solid blood clot. The right tube was spirally convoluted, but otherwise healthy. Every part of the tube, mucous membrane, muscular wall, connective tissue and peritoneum was normal except its excessive convolutions.

Case 34.—Mrs. M. M. came to the Woman's Hospital for treatment about June 1, 1892. Age 21, been married one and one-half years, has had no children and no miscarriages. Has had excessive and painful menstruation since last Christmas. Has severe pelvic pain in left ovarian region, and has an excessive leucorrhœa. Upon bimanual manipulation the uterus is immovable, and unyielding masses are felt on either side of the uterus—a case which formally would have been pronounced general cellulitis—the abnormal condition seemed so universal that I was rather led against my experience and better judgment to believe here at last we had a case of genuine classical cellulitis, which we used to diagnose and describe so accurately in prelaparotomy days. I was doomed to disappointment, however (as I have always been under like circumstances), when I opened the abdomen and unravelled from a mass of exudate a couple of typical pus tubes, which had been the cause of all the exudate. Drainage was necessary, and the woman made an uninterrupted recovery.

Case 35.—Mrs. K., age 31, entered the Charity Hospital Dispensary about May 1, 1892. She had suffered much for a number of years with severe pelvic pain and recurrent attacks of peritonitis. Her history was clear, indicating pyosalpinx with peritoneal extension. I performed laparotomy at the Charity Hospital, assisted by Dr. Dodds, and found two large adherent distended tubes, which were enucleated with difficulty. The patient made a rapid recovery.

Case 36.—Mrs. B., aged 40, was sent to the Charity Hospital to be operated upon for pelvic abscess. Upon examination a large boggy semi-fluctuating mass was found on the left side, and a well-defined enlargement over the broad ligament. The patient had a history of specific infection—a drunken, licentious husband, and repeated miscarriages with one or two attacks of peritonitis. Her former attendant had been waiting for the abscess to point so that he might open it, a common but obsolete practice, and one ending in unsatisfactory results. I at once selected laparotomy as the proper remedy for the case, and applied it. The left tube was very large, and buried in exudate, covered with adherent intestines and omentum. It was carefully enucleated and was filled with free pus. The left tube was also suppurating and was removed in the same manner as the first.

This case teaches us the same lesson that all of these cases teach, viz: that almost invariably pelvic abscesses are of tubal origin; that tubal abscesses are almost invariably bilateral; that by opening one through the vagina or elsewhere, one only temporizes and leaves a second abscess uncare for, which will be sure to give rise to a second train of symptoms; finally, that the true way to treat pelvic suppurations is by abdominal section and complete removal of all infected tissues.

Case 37.—The exact date of this operation has been lost. Double oophorectomy was performed on a young lady about 25 years of age, for the purpose of modifying epileptic attacks which made their appearance with puberty, and which were much aggravated by menstruation. The operation was performed at the Woman's Hospital. No drainage, primary recovery without incident. I was unable to find this patient and therefore am unable to make a report as to more remote results.

A PROJECT having for its purpose the creation of a department of public health is receiving attention in England. It will be in charge of a responsible minister.

LITHÆMIA: ITS TREATMENT.

Read before the Harvard Medical Society, October, 1, 1892.

BY REYNOLD W. WILCOX, M.A., M.D., LL.D.

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At the present time there is no necessity for an apology for taking up the subject of lithæmia. With the greater acquisition of wealth, and the luxurious habits of living incident thereto, with increased competition in the mercantile and professional world, we meet, more and more frequently, with cases which illustrate the symptom-complex known as lithæmia. The subject is by no means a new one, although with greater and more accurate knowledge of physiological chemistry, with more careful and complete physical examination, we are able to define more clearly the processes which result in this condition, and with even more certitude, proceed to its cure.

Not long after the report of that gun was heard at Lexington, which echoed around the world, Scheele, the Swedish chemist, announced that uric acid was a normal constituent of the urine. From that time on, our British cousins, with the exception of a very small party who still believe in the neurosal theory of gout, have studied this crystal, and built up around it a system of medicine. While their studies have resulted in throwing a great deal of light on the subject of gout, they have been partial studies, and have not resulted in bringing the subject to that degree of simplicity that the present state of medical science demands. While they have deified the uric acid crystal, they have by no means left the subject in such a condition that we, in this country, can utilize their researches.

The subject of lithæmia is a broad one; its symptomatology presents a large field for study. While we may have a lithuria without a lithæmia, we can by no means have lithæmia without lithuria. We may, perhaps, appreciate that gout is but a portion of the broad field covered by lithæmia, or we may say that lithæmia is latent or modified gout, or a forerunner of gout; but for our present purpose we prefer to call it the uric acid diathesis, uric-acidæmia, or a tendency to the development of uric acid. It is to be contrasted with gout, in that lithæmia comes on like a thief in the night, whereas gout is sudden, sharp, and easy of diagnosis. The underlying principle of lithæmia is deficient oxidation in the body, an imperfect tissue metabolism.

The types of lithæmia are perhaps best understood if we follow Satterthwaite's clearly cut classification—the hepatic type, dyspepsia; the neurotic form, neurasthenia; the articular type, gout. In gout, we have sodium bi-urate in the interior tissues of the body, gout differing from gravel in that in the latter, uric acid is in the free state in the urine. In gout the error is this side of the kidneys; in gravel, the error is the other side. And right here we may as well say that from the results of treatment, and from a study of a considerable number of cases, we are inclined to believe that oxaluria, so-called, is merely aggravated lithæmia.

The reason for the appearance of uric acid in the blood, and secondarily in the urine, may be threefold: 1. An increased production from high living, immoderate use of animal foods, a diet rich in albuminoids, or even in fatty matter, although the latter

is not directly an agent; 2. Imperfect oxidation of the nitrogenous foods, dependent perhaps upon the neurotic temperament, upon too little exercise, upon the use of alcohol, especially sweet wines, upon the use of "heady" wine and beer, upon the moderate and continuous use of tobacco, highly seasoned dishes, impaired glycogenic activity of the liver, or the supply of oxygen being relatively insufficient; 3. Impaired elimination by the kidneys. An increase in the proportion of acids and acid salts in the blood tends to retain uric acid in it, hence, the acidity of the blood is high in winter, but lower in summer, because of the loss of acids in the summer in perspiration; hence, uric acid is stored up in winter, and excreted in summer, and this is presumably the explanation of why lithæmia is more prevalent in the spring-time, even if it is customary for a winter vacation to be taken. Again, in vigorous nutrition in adult life, acidity runs high. In coming to a clear conception of the importance of uric acid, it is always well to remember Haig's law, that all substances which form soluble compounds with uric acid, or increase its solubility in the blood, increase its excretion; while all substances which form insoluble compounds with it, or diminish its solubility in the blood, diminish excretion. The excess of uric acid is stored up in the tissues; it is manufactured in the spleen, and that is the most important reservoir—in the nervous system, in the liver, and in the connective tissue. In only one disease, so far as I know—leucocythæmia—does uric acid exist uncombined in the body.

The symptomatology of lithæmia is extensive. The patients are never sick, and they are never well; they may be obese and sluggish, or thin and wiry; the conjunctivæ are usually yellowish and muddy, particularly in the first type; the lips are œdematous and pale; the gums and mucous membrane pallid; the tongue is coated, especially in the morning; there is frequently a metallic taste in the mouth, and impaired or perverted appetite. We have all forms of indigestion—heartburn, retching, dyspepsia soon after the indigestion of food if there is failure of digestion of the albuminoids, or at a later period, if due to failure of digestion of starches, sugars, or fats. There is tension and fullness in the epigastric region, a tumid abdomen, acid eructations, gaseous distension, discomfort after eating, and irregularity of the bowels, with a tendency towards constipation. Sometimes with marked abdominal pain, we have diarrhœa, with frothy, ill-smelling stools; hæmorrhoids are common; blood is frequently passed independently of hæmorrhoids; we have a good deal of itching about the fundament, even eczema; the liver is enlarged and tender.

The circulatory symptoms are quite characteristic. The patient complains of palpitation, of precordial anxiety, the pulse is hard, narrow, and tense, usually slow, but in anæmic and debilitated individuals, it may be quick; the tension varies directly as the uric acid in the blood, which probably acts upon the vasomotor nerves, contracting the arterioles all over the body, and so raises arterial tension. In Raynaud's disease, in which the diagnosis, to be absolutely established, must exclude organic disease of the blood vessels, we have a beautiful example of local spasm. It is fair to presume that some of these cases may have an underlying uric-acidæmia. In a lesser degree, we have cold hands and feet, frequently

so cold that they cannot be kept warm short of immersion in hot water.

The respiratory symptoms are not numerous. Generally, however, the respirations are accelerated, and the patient suffers from a dry, unproductive, and irritative cough. Quite characteristic is a patchy congestion over the mucous membrane of the larynx and pharynx, which gives rise to an explosive cough. Sir Andrew Clark has mentioned "arthritic hæmoptysis," of which I have seen but one illustration. On the other hand, it must be remembered that chronic bronchitis, especially complicated by emphysema, and other diseases interfering with respiration, tend to cause lithæmia.

The integumentary symptoms are usually sallowness, or an abnormal redness of complexion; the skin is dry, itchy, and muddy. There is quite frequently a papular or anomalous eruption, even eczema of the genitals; localized œdema is not uncommon. A quite characteristic condition is a slight cutaneous anæsthesia, or a marked paræsthesia.

The urinary symptoms usually attract attention. They are, a weight about the kidneys, increased usually on exertion; the micturition is frequent and burning, the urine scalds the urethra, and may even produce distinct pain.

Among the sensory sphere, we have headaches, which extend over considerable periods of time, usually a diffused frontal headache, at times, occipital; frequently migraine is a marked and an obstinate condition. Of the neuralgic attacks, those involving the intercostal nerves are more frequent. The patient suffers much from vertigo, due, according to Buzzard, to an affection of the bulb near the origin of the auditory nerve. He complains of lassitude, of weariness, and disinclination to bodily exertion; his limbs ache; frequently there is numbness and irregular areas of cold skin.

The vaso-motor conditions give rise to peculiar symptoms. Broadbent mentions a fugitive aphasia, amblyopia or hemiopia, which he explained by stasis or ischæmia in certain vascular areas, and thinks this is due to uric acid. The patients have great irritability of temper, sometimes slight aphasia, forgetful of names more particularly. Bastain calls attention to a slight lowering of the functional activity of the auditory centre, which again produces a slight amnesia with forgetfulness of names of persons and things, the centre not being sufficiently active to respond to some volitional and associational incitations. The patients are peevish, they magnify little ills, they have delusional mental conditions, depression of spirits, mental inertia, mental irritability, and with this depression, hypochondriasis. They are excitable, and yet they are melancholic; they are disinclined for mental exercise; they have great sensitiveness to sounds and light; certain odors become remarkably repugnant. Other patients are drowsy and sleepy, have disturbances of vision, and noises in their ears. Among the symptoms in the locomotory sphere, we have cramps in the calves of the legs, pricking in the joints—and here, we are on the border line of gout.

The urinology is quite important. The formation of uric acid in its relation to urea, according to long continued observations of Haig, is one to thirty-three. If, however, there is less uric acid excreted, then we have it stored up in the body, and we can get our symptoms of lithæmia. If, however, more

than this proportion is excreted, then it is not from increased formation, as a general rule, but it is from some which has been previously formed, and not excreted. The urine is scanty; if uric acid is in excess in the urine, it is also in excess in the blood, and this, by bringing about contraction of the arterioles of the kidney, easily diminishes the out-flow of water. Its color is usually high, and the specific gravity is increased. According to Dana, there is a greater frequency of heavy urines in the irritative and diathetic forms of neurasthenia. The inherent tendency of the urine is to spontaneous precipitation of uric acid. All acid urines, if kept aseptic, deposit uric acid sooner or later, usually beginning with the twenty-four hours, but it may be delayed a week or longer. Even with lessened excretion of uric acid, the acidity is increased, and this increase continues from day to day, and finally, a layer of urates and uric acid will be deposited, or uric acid will be thrown down alone. In oxaluria the specific gravity may be normal, but the urine is usually pale and greenish, depositing crystals of oxalate of lime, especially in the night urine. At times, however, the phosphates and calcic oxalate are in excess, especially in neurasthenic urine; we may often find red blood globules, and sometimes a trace of albumin.

The salient facts in connection with the excretion of uric acid are, that it is inversely as the acidity of the urine; that it exists in the urine in combination with alkaline bases, and that it requires for solution fifteen hundred parts of warm water. An important fact in therapeutics is the observation of Roberts, that the hourly excretion of uric acid is three times greater than the "alkaline tide," which is from 6 or 7 A.M. to noon or 1 P.M. In normal urine, according to recent investigations of Roberts, uric acid exists as a quadra-urate ($\text{H}_2\text{U}_4\text{MHU}$). Uric acid is normally a bibasic acid having the formula, $\text{H}_2(\text{C}_5\text{H}_3\text{N}_3\text{O}_3)$ or H_2U . The acid urates are very stable; in gout, as I said before, we have the sodium bi-urate. The neutral urates, M_2U , cannot exist in the presence of carbonates, and therefore, have no part in the life history of uric acid. An amorphous urate deposit is never thrown down in a neutral or alkaline urine. In liquids containing an alkaline carbonate, for instance, blood serum, uric acid passes into solution as an alkaline urate, and is voided as a quadra-urate; in gout, from the deficient action of the kidneys, or the excessive introduction of urates, the quadra-urate lingers, and circulates in a medium rich in sodium carbonate, and so becomes a bi-urate, which is less soluble, and which exists at first as a gelatinous modification, and finally, passes into a crystalline form, and is precipitated. These crystals may be so fine as to pass through a filter.

There is a clinical relationship of headache to gout. The urine excreted from the kidney during the headache contains an excess of uric acid, which excess may be brought about by the administration of an alkali. If this increased excretion is checked by an acid, all the symptoms disappear, but pricking pain is felt about the joints. All substances which diminish the solubility of uric acid, and therefore diminish the excretion, increase the pricking pains in the joints and fibrous structures, and here it should be noticed, that a difference of one or two grains a day in the amount of uric acid thrown into the circulation, may make, and probably will make, a world of difference in the symptoms.

The results of lithæmia can be anatomically demonstrated. Independent of gouty tophi, and the deposit in serous membrane or fibrous structures of sodium bi-urate, we can have as a direct result, chronic catarrhal hepatitis, fibrous degeneration of the kidneys, cardiac hypertrophy, periarteritis, and especially of the small arteries, and a fibrous or white areus senilis.

The prognosis is ordinarily a favorable one, because if the disease is taken in hand before anatomical changes have taken place, it is usually comparatively easy to bring about a change in the habits of the patient, and with proper hygienic, dietetic and medicinal treatment, to relieve the patient of the symptoms, and bring about a cure.

In discussing the subject of treatment, we should separate clearly and distinctly the first two classes mentioned above. The obese, sluggish patients, who have marked dyspeptic symptoms, require an entirely different treatment from the wiry, thin and nervous neurasthenic patient. Diet is important, and a diet determined by watching the stomach and intestines carefully. Contrary to our English cousins, we believe that animal food is preferable, because it is simply a vegetable food which has passed through certain processes, and become flesh; in other words, a part of the process of making this fit for food is done for us by another animal—it has a higher potential energy. I believe with A. R. Smith, that the limitation or exclusion of proteid food is a mistake, for the habit of excreting uric acid is like a spendthrift, and is not to be cured by withholding money, but by teaching him better habits. Since a meat diet and fat yield the largest amount of working power for the smallest amount of oxygen used in the metabolic transformation of food-stuffs, and in assimilation, and since vegetable food-stuffs contain plenty of nitrogen, but a large excess of C HO as well, so a vegetable diet overtaxes the oxygenating power of the system (Porter). Therefore I believe a meat diet is advisable, notwithstanding the fact that there is less production of uric acid with a vegetable diet. But the uric acid that we meet with in the blood is not so much due to increased formation, as to failure of excretion. In gout, following Ebstein, it may be necessary to limit the quantity of proteids, since from a larger proportion of urates comes the deposition of sodium bi-urate, but we should remember that gouty patients indeed cannot digest sugar and starch, although the latter with fats have no direct influence on the production of uric acid. Although it is a fact that meat increases acidity, due to its salts, yet this can be readily counteracted, as will be explained below. We prescribe, then, lean meat, which is easily digested, but we may add succulent green vegetables, when flatulence, headache and drowsiness do not come on one or two hours after eating. If immediately, weight and pain and heart-burn with acid and gaseous eructations, are experienced, and these symptoms are persistent, we can diminish the butcher's meat, and use instead the white meat of fowl, sweet-breads or fish. Fatty substances should be used with care, as they give rise to butyric acid fermentation, and they also coat the meat fibre. We should also avoid fried meats of all kinds, and all made-over dishes. Frequently it is necessary to begin the treatment with skimmed milk, then add eggs without the yolk, which is oily, and contains lecithin; chopped beef and hot water are

frequently serviceable. Later, we can use mutton and white meat of fowl, but with great care, because to some, fowl is a poison. Fish, as mentioned above, is useful here; green vegetables and fruits are generally well borne. In anæmic, thin individuals, and in those of the first class, when the digestion is well established, malt, cod-liver oil and cream are very serviceable. All lithæmics should avoid spices, smoked and salted meats and fish, pork, cheese, oily and farinaceous compounds, pastry and rich gravies, and tea. Coffee can be used in moderation. Although spirits have no effect upon the solubility of the sodium bi-urate, yet as alcohol diverts inspired oxygen from albuminous compounds, which, accordingly, instead of being converted into urea, remain at a lower point of oxidation, as uric acid, therefore it should be used legitimately, either as spirits without sugar, and well diluted, or as Schreiber's sugarless, dietetic red wines (Loeb). Meat and wine together may interfere with the alkaline tide the next day, when neither separately will do this. Therefore, do not combine them. Garrod very aptly puts it, that the blood becomes loaded with uric acid, not from increased formation, but from imperfect excretion; therefore, large quantities of fluid should be used, which dilute the urine, diminish the irritation of the kidneys and urinary passages, retain solid matters in general in solution, and wash precipitates from the kidneys and bladder. Little fluid, however, should be taken with meals, so we may not dilute the gastric fluid and distend the stomach, thus interfering with its motility; and that little fluid which is taken should, in the earlier stages of treatment, usually contain carbonic acid, which is a healthy stimulant to the stomach. The requirement as to fluid is best filled by a mineral water, which must be alkaline, which most properly contains lithia, and of the mineral waters, my experience has been with the Londonderry lithia water, used to the extent of eight or ten glasses daily. If taken at meals, it is to be taken carbonated; if used between meals, it is to be "still." The use of this water lowers the percentage of urates markedly, and it dilutes the blood.

The hygienic treatment has for its most important division, the prophylactic. My own prescription, and one that I have found the greatest success in, and one that I am sure has obviated much subsequent suffering, is the constant use of the lithia water, and more particularly in the spring of the year. The meals should be regular, and as meals act as alkalizers and diluents, they should be frequent. Thorough mastication is important; exercise is valuable in plethoric persons because it uses up oily compounds in the system, and should be taken in the open air—horseback, rowing. Nervous persons, however, require rest, according to Gray. The seaside is usually more suitable for them than the mountains, and sunlight should be insisted upon. Sleep must be secured, and if possible, without the use of drugs. Ralfe advises the use of cold water pads to the abdomen at night.

In the medicinal treatment, we must bear in mind the two classes mentioned above, and for plethoric and dyspeptic individuals, I believe at the outset that Carlsbad sprudel salts, one to two drachms in half a glass of cold water, taken before breakfast, should be persevered in until two or three stools are secured each day; then stimulate the liver with podophyllin, $\frac{1}{2}$ gr., euonymin $\frac{1}{4}$ gr., iridin $\frac{1}{4}$ gr., adding

sufficient aloin, $\frac{1}{2}$ to $\frac{1}{4}$ gr., to secure a free movement. This is best given in the tablet form, once or twice daily. Frequently in these cases, the Carlsbad salt is not well borne: it irritates the intestine, and gives rise to a good deal of pain. In these cases, Villabracas water, from a sherry to a claret glass full will be usually sufficient. The neurasthenic and anæmic cases, those who suffer from insomnia and melancholia, must usually have their undue nervous excitement allayed, either by giving ten or fifteen grains of bromide of sodium, two or three times daily in Vichy, or, what I have found is better, phenacetin in from eight to twelve grain doses. For these, a gentle laxative only must be used, such as the compound rhubarb pill at night, or a claret glass of Rubinat-Condal in the morning. Some authorities believe it better to clear out the uric acid by the salicylates, alkalies, or the phosphate of soda, before you markedly alter the diet, but I do not believe this is the best way of commencing the treatment. The drugs which increase the excretion of uric acid are the alkalies, especially lithia, which has a low equivalent and therefore a greater neutralizing power, weight for weight, than any of the others. It is effective, therefore, in small quantities, and less demand is made upon the kidneys in excretion. Although it markedly diminishes the acidity of the urine, unlike all other alkalies, it reduces arterial tension, quickens the pulse, and produces diuresis. Used at bed-time, it clears up the habitual morning headache and bad feelings. For this purpose, eight to twelve ounces of the plain water will prolong the morning alkaline tide; in fact, with the Londonderry lithia water, which is a combination of alkalies with the carbonate of lithia made by nature, one can readily keep the urine faintly acid except after meals, when it should be slightly alkaline, and thus secure free elimination of the uric acid. If potash is used for this purpose, it is necessary to take a large dose, forty to sixty grains of the citrate, in three or four ounces of water, and generally a second dose at midnight, to secure a diminished acidity of the urine until eight o'clock of the following morning. It is well to remember that large doses of potash salts continued over considerable periods of time will produce structural degeneration of the kidneys. Acetate of potash has a more rapid, but less enduring action; the carbonates of lime or magnesia have but little effect. Salicylic acid with uric acid forms salicyluric acid, which is more soluble in water than any of the other salts of uric acid, and also much more soluble in the slightly acid fluids. If there is fever, or the alkalinity is low, this may be satisfactory. The necessary dose is from five to fifteen grains after meals, three times a day. A considerable distance after the acid comes salicin, and of still less value is salol, although in oxaluria it has been of signal advantage; chiefly, perhaps, in hepatic cases where the ptomaines are in abundance. A word of caution is necessary. The salicylates and alkalies interfere with each other's action, and when they are about equally balanced, diminished excretion is the result. Next in value to the use of lithia comes phosphate of soda, from one to six drachms. Phosphate of soda, $\text{Na}_2 \text{H P O}_4$, should be carefully distinguished from the acid phosphate of soda, $\text{Na H}_2 \text{P O}_4$, which, for this purpose, has no value. The phosphate of soda does not excite diarrhoea even in large doses. A greater part is excreted by the urine; it will hold

in solution more uric acid than any other salts; it does not make the urine alkaline; it excites elimination from glandular structures, as the liver, for instance, and does not act by osmosis. It should always be given with an alkali, as the bicarbonate of soda (Haig), because it only acts in an alkaline medium. Acids, or salts of mineral acids, as sulphates, convert it into acid phosphate of soda, which is useless. This remedy is exceedingly useful where the alkalinity is high, where headaches are a marked symptom, where we have a high tension pulse, and much mental depression. Piperazin is not a powerful excitant; it cannot compare with the salicylates, but like them, its action is interfered with by acids. I have only found it of use when, in the treatment of neurasthenic cases, it was combined with large doses of phenocoll hydrochloride, up to sixty grains a day. Quinine increases the excretion of uric acid, perhaps by contracting the spleen, the reservoir of uric acid, which may explain the headaches found after its administration. Of course, the sulphate radical would increase the acidity, and diminish the uric acid. It is frequently of use when convalescence is established. Colchicum, aside from its use in gout, is important only when uric acid is in excess in the blood, and the kidneys are incapable of throwing it off. It must not be used when dyspeptic symptoms are prominent, and it seems to me to be chiefly valuable when it purges freely. Although uric acid cannot be directly oxidized into urea, as can creatin and creatinin, yet under the inhalation of oxygen, two to three gallons, once or twice daily, we can surely reduce the amount of uric acid, and increase that of urea. This is sometimes an important agency in the treatment of anæmic patients. Following Prout, dilute nitro-muriatic acid, five to ten drops, three times a day, before meals, is useful in the hepatic variety, after the acute dyspepsia is relieved. The hydrochloric acid digests the proteids, and the nitric acid stimulates the liver. This especially is well combined with compound tincture of gentian in teaspoonful doses, or with tincture of nuxvomica, fifteen drops, three times a day in half a glass of water. The combination of dyspepsia, palpitation and insomnia, is frequently relieved, as if by magic, by lavage, using hot water, to the quart of which, a drachm of Carlsbad sprudel salt is added. This operation frequently need not be repeated more than three or four times to obtain complete relief. In cystitis due to lithæmia, I consider pichi to be the most valuable remedy: forty drops of the fluid extract when combined with an alkali, as fifteen grains of bicarbonate of soda, being given three or four times a day. In this class of cases, alcohol is a poison.

To sum up this important part of the subject: I believe that in a meat diet, perhaps limited in quantity, using only green vegetables, with the curative and prophylactic effect of the lithia water, and with a regulation of the patient's habits, as regards exercise and meals, and with the intermittent use of phosphate of soda, we have a sure and accurate solution of the problem of how best to treat our lithæmic patients.

At the last session of the Utah legislature an act was passed creating a board of medical examiners consisting of seven members.

COUGHING MADE EASY IN BRONCHIECTASIS.

BY H. D. DIDAMA, M.D.,
OF SYRACUSE, N. Y.

A few years ago, at Skaneateles Junction, resided an old lady who for many months had been troubled with a cough which her friends regarded as consumptive. The cough was severe enough at all times, but twice or thrice in twenty-four hours there were violent, long-continued paroxysms attended with copious and extremely fetid expectoration.

I recognized, as you all would, bronchiectasis. The patient had not derived much benefit from the cod-liver oil and numerous cough medicines which she had taken faithfully in great abundance. Her appearance did not denote tuberculosis, and under change of treatment relief was afforded, the paroxysms ceased and the offensive odor disappeared.

Recently Mrs. H., of C., about thirty-five years of age, came under my observation. She had had bronchial catarrh for a year and a half, and a few slight hemorrhages.

After a time the cough became paroxysmal, and during these violent fits, which lasted without sensible mitigation from sixty minutes to three hours, the copious expectoration was so offensive that the windows had to be kept open. The disease was thought to be tuberculous, cancerous ulceration or gangrene which involved the stomach, for vomiting was of frequent occurrence, and the odor of the vomited material was also, as the patient expressed it, enough to knock anybody down.

At my first visit the patient was found weak and emaciated, but without the tuberculous or cancerous facial expression. The scent of the expectoration fairly justified the description given. The history showed that enough food was taken, but that two or three times a day it was all vomited, and that these vomiting spells coincided with the severe coughing ones. There was some diarrhoea, but the odor of the alvine discharges was entirely unlike that of the vomited material. There was no gastralgia, no tenderness in the epigastric region. The diagnosis of course was uncomplicated bronchiectasis. The *rationale* of the symptoms was obvious. If the stomach had been involved the stools would have possessed the peculiar odor of the sputa. Nausea and vomiting, which were excited by the violent coughing and the repulsive smell, increased mechanically the amount of the putrid material expectorated, and this, mingled with the ejected food, perfumed the whole mass and led to the mistaken diagnosis of gastric ulceration or gangrene.

Proper explanations were made and encouragement given to the intelligent patient, and a therapeutic plan was instituted which included tonics of iron, strychnine, Venice turpentine, santal, and so forth, and the use with a steam atomizer of a deodorizing spray.

Perhaps the most important element in the treatment of this case and the one at the Junction was the emphatic and iterated direction to cough downwards. The usual and proper information was given to the patient that a pocket was formed in the tubes of the lungs, and that when this pocket became filled and running over, as it did two or three times a day, the unpleasant and irritating material caused the terrible fits of coughing. The walls of the pocket, it was further explained, were so thick, that even the

most violent and long continued attacks could not compress them enough to empty the pocket entirely, and so a portion of the putrid matter remained to contaminate future collections. Now by lying in bed (the patient was told) or on the lounge, with one hand on the floor and the head almost reaching there, the pocket would be inverted and the fluid would run out almost of itself, and its expulsion would be hastened by a short spell of coughing. The direction was given not to wait until the pocket became wholly filled again, but to anticipate this period by inversion four or five times daily.

The injunctions were obeyed. The result was favorable. In five minutes the pocket was emptied more completely than when she had formerly "coughed her head off" for an hour or longer. The odor disappeared, vomiting and diarrhoea ceased, the flesh came back; and to-day, with the exception of a slight cough and a few mucous râles in the left infra-axillary region, the grateful patient, who rides twenty miles to town for inspection every two weeks, is decidedly convalescent.

It is proper to add, that the idea of coughing down hill was derived from a small pamphlet published nearly fifty years ago by the poet N. P. WILLIS, who claimed that he had cured himself of consumption by this original device and by horseback exercise. In all probability the supposed consumption of the poet was bronchiectasis, but his suggestion is none the less valuable; and the writer of this paper has known great—even if temporary—relief and comfort to be obtained by this gravity treatment in cases of phthisis, when large cavities and excessively annoying coughs existed.

Recently I was invited to see a patient who had a cavity in the right infraclavicular region capacious enough to hold a teacupful of mucus. He discovered that he could sleep three or four hours with but little disturbance while lying on his right side, but that if—after this period of repose—he turned upon his left side, a brief fit of coughing ensued. If he attempted to sleep lying on his left side, the cough was incessant, and the sputa only moderate in amount. Every one can see without explanation that while in one position the secretion accumulated, exciting in the nerveless pocket little or no cough, till the reservoir was filled, when on turning over, the irritating material ran out by gravity into the sensitive bronchi and produced an easy cough, sufficiently prolonged to secure thorough evacuation; in the other position, on the left side, there was a continual dripping from the abscess cavity and a wearing cough which banished sleep. Two mornings after, as I learn, the patient, after a prolonged sleep which lasted all night, turned upon his left side. The large amount of pus which had been permitted to accumulate during this long period, poured out suddenly into the tubes and produced strangulation and almost instant death.

It is respectfully submitted that this *facilis descensus* treatment might be so beneficial in some cases of real or supposed gangrene of the lung, communicating with a bronchus, that pneumonectomy might be unnecessary.

THE yearly meeting of the Nebraska State Medical Society will take place at Nebraska City, May 16, 17 and 18.

SOCIETY PROCEEDINGS.

American Electro-Therapeutic Association.

Second Annual Meeting, held in New York, October 4, 5 and 6, 1892.

WILLIAM J. MORTON, M.D., PREST.

SECOND DAY, OCTOBER 5—MORNING SESSION.

(Continued from page 282.)

A CONTRIBUTION TO THE ELECTRICAL TREATMENT OF CYSTIC GOITRE AND HYDROCELE. ALSO A NOTE ON PSORIASIS.

By Charles R. Dickson, M.D., C.M., Toronto, Canada. Electro-therapist to Toronto General Hospital, Victoria Hospital for Sick Children, and St. John's Hospital.

The object in reporting the following cases thus early is to ascertain if others have worked along the same lines of treatment, and if so what the results have been, for I am not aware that the plan has been proposed before, but it seems such a rational procedure that I trust it will merit a trial. It is applicable to other conditions, but my remarks are restricted to the initial cases mentioned in the title of the paper.

Bilobular Cystic Goitre.—S. H. C., bookkeeper in a village general store, gave the following history. Age 19 years, father alive, healthy; as he was only eight months old when his mother died, he cannot tell anything about her from personal knowledge, but says she had a thick neck which was hard and never contained fluid, but it "turned to an abscess, which affected her brain and killed her" at the age of 32 years. There are three boys and one girl, all living; none of the others having neck trouble. Healthy when a child. First noticed swelling about 11 years ago. Right lobe formerly the larger, but being treated by tapping and injections, was reduced. Left lobe emptied twice but refilled in two weeks. Left lobe and isthmus constitute the chief enlargement now. Circumference of neck 16 inches. No dyspnoea or dysphagia at present, but suffered from them before first tapping. On July 3, 1891, patient came up to Toronto for treatment. As he felt very timid ether was administered by Dr. Scadding, who also kindly assisted me. The battery used was the ordinary portable 24-celled bichromate battery. The positive electrode a $7 \times 4\frac{1}{2}$ inch sponge covered zinc plate was placed under shoulders. For the negative electrodes two steel needles (piano wire) were introduced, one into the isthmus, the other into the left lobe from below upwards, 18 cells gradually brought into circuit, the meter registering 30 milliamperes, which was kept up for eighteen minutes, then in the stead of the former positive electrodes a small circular one was placed over the tumor, and 20 ma. for five minutes employed, the cells again gradually cut out, needles withdrawn, and a simple boracic dressing applied. Very little change was perceptible after this treatment, and it occurred to me that if the cysts were filled with a better conductor than the ordinary contents the action would be much more vigorous, and on July 11, with the assistance of Dr. Scadding, this idea was carried out. A hypodermic injection of five minims of a mixture of five per cent. cocaine with six per cent. antipyrine in distilled water was administered, and a medium sized aspirating needle being introduced, the contents of the cysts were withdrawn. As the loculi communicated one puncture was sufficient then, without removing the needles the cysts were filled to distension with a solution of chloride of sodium in hot water 5i to 3j. One steel needle was also inserted and both it and the aspirating needle connected with the negative pole, the positive pole being below shoulder as before, a strength of 30 m.a. was used for five minutes, then the small positive electrode was placed over the

tumor, and for five minutes more a strength of 25 m.a. employed, the cells cut out of circuit, the saline solution withdrawn, much gas accompanying it, the needles removed, and the punctures dressed as before.

On August 5, the patient wrote that the cysts were refilling, but not so rapidly, it being now twenty-five days since last electrolysis, while formerly a fortnight sufficed to refill.

On August 8, after a hypodermic of the cocaine mixture the cysts were again aspirated, the contents being much more fluid; they were then filled with the saline solution, the aspirating needle connected with negative pole, positive being between shoulders, a strength of 30 m.a. for seven minutes used, then the positive being over the tumor, 25 m.a. for seven minutes, the cysts again completely emptied and a large borated compress placed on site of operations, firm pressure being kept up by means of a broad adhesive strip and the patient again sent home.

On Sept. 9, he wrote, "My neck is down flatter than when I left you last," and on the 12th I find his neck measures $14\frac{1}{2}$ inches in the greatest circumference, and the gland reduced to the size of a small walnut. On Oct. 30, he wrote that the lump was still there, but that he had enjoyed much better health, I advised that the neck be let alone for the present, but that on the first sign of refilling he should report.

On Jan. 18, 1892, he writes, "I believe the lump has completely gone away, my neck is getting in better shape all the time. I am sure I have enjoyed three times better health the last three months than ever I did before. I used to be troubled with headache a lot, and I have not had it once the last three months; I have gained weight considerably too," and much more in the same strain.

So far the result was most gratifying, and as I had heard nothing further from him I counted it a cure, and thought it might be well to report it, but to make sure I wrote to him and on September 12, last, he replies, "My neck started to fill up again last June, but it did not fill up very much." He then stated that a doctor passed through his village selling a wonderful thick neck remedy he was using. Naturally I felt very much disappointed and my first impulse was to withdraw the paper, but our failures often teach us more than our successes and for the benefit of others as well as ourselves should be reported. Had the process been carried further I do not doubt the cure would have been complete. The cyst walls should have been thoroughly obliterated instead of relying on nature to carry on resolution. I confess that in using electrolysis I try to get along with the least strength that will do the work.

Since treating this case I have applied the principle of filling cysts to distension with a good electrolyte such as salt solution surrounding a needle affords in other cases with most gratifying results, the thin walled cysts being the most amenable to treatment.

Hydrocele.—In May of this year I was consulted by a man with hydrocele who stated that various treatments had been tried without avail so I determined to try the same principle to his case. The following was his history: P. S., teamster, three years ago last winter while "skidding" logs in a lumber yard the hook in the single-tree broke, and the single-tree flew back striking him in the epigastric region; a pair of thick mitts in his belt broke the force of the blow, was unconscious for about five minutes, but was at work again the next day. Right testicle began to swell shortly afterwards, but he did not consult anyone till the spring. The hydrocele was tapped three times at intervals, then in Nov., 1890, without removing the fluid 20 drops of a 50 per cent. solution of carbolic acid in glycerine was injected and a year later the injection repeated, the fluid being first removed. In January of this year, he was advised to use a

support and constructed one which he has continued to use, as he thinks it relieves him.

On May 6, 1892, after a hypodermic injection of five minims of the cocaine mixture an aspirating needle insulated with hard rubber to within one inch of its tip was introduced, the bare portion being well within the sac, seven ounces of straw colored fluid withdrawn and a warm saline solution grxl to 3i pumped in; as the patient complained of considerable pain only 3½ ounces were introduced and the balance made of hot water: the needle was connected with the negative pole while the large positive electrode was placed over the epigastrium, the cells were gradually brought into circuit till meter registered 15 m.a., which was continued for twenty-three minutes, then 25 m.a. for five minutes when the action was stopped, the sac emptied, a marked decrease in the quantity of fluid being noticeable and a consequent abundance of gas. A dressing of iodoform and boracic acid on alembroth gauze applied and retained by adhesive strips and the patient sent to his hotel with instructions to keep quiet and off his feet. The following day the testicle was strapped to ensure close apposition of walls of sac.

Besides the above trouble the patient had several patches of psoriasis, which I thought it well to give some attention to; two spots on the forehead near scalp, and three large ones on right shin. He stated that it first appeared ten years ago, no specific history; he was living in Bannffshire, Scotland at the time and had consulted a large number of medical men both in the old country and on this side, many of them eminent in their profession, but had never been able to get rid of the trouble.

The resistance through the dry scales being very great, they were kept moistened with a solution of salt and water and a bi-polar carbon roller electrode connected with both poles of a galvanic battery passed over each spot in every direction, for about five minutes at each, the meter indicating from 10 to 30 m.a., and quite an amount of gas being evolved. This was repeated each day from May 7th till the 12th. The spots were all looking so much smaller and better in every way then, that he decided to leave for home. I gave him the following prescription:

R. Acid chrysophanic gr. xx.

Adipis ad 5ii M. ft. ung.

Sig. Appl. nocte maneque.

On August 20, he returned to report with no sign of the hydrocele, his general health very much improved, and the psoriasis entirely gone. It disappeared completely three weeks after he stopped coming and before he had used half the ointment; he stated also that when the first injection was tried he was thirty-four days off work, while after the electrolysis he was off for twenty days only.

I trust that both these cases possess sufficient interest to justify me in reporting them at this early date, they were the first treated by me in the above manner, and I have altered my procedure very little in dealing with subsequent cases of cystic goitre, I have treated no further cases of hydrocele. With regard to strength of application of electricity I take this stand. I recognize in electricity a force most potent for weal or woe therefore instead of endeavoring to administer the greatest strength a patient can stand and still survive, I aim to use the mildest that will prove curative, keeping in mind the fact that between our poles within our circuit are included parts of the most delicate mechanism. Nature is often most kind to us in coming to our aid with her recuperative powers, and repairing damage we may have done, but let us not on that account be led to presume on her kindly offices, but remember that there may be a limit which it would not be well to overstep.

A word about the electrodes. The negative is an ordinary

aspirating needle which is readily insulated by heating it over the flame of a spirit lamp and at the same time warming an old hard rubber thermometer case and rubbing on till the requisite covering is obtained; a little practice will give a smooth and even insulation.

In the positive electrode a potter's sponge is sewed to the soft rubber backing in such a manner that the metal plate can be slipped out and the sponge then washed when necessary. In application in goitre, I wet the sponge well with a solution of soda bicarb. in hot water, apply between shoulders with a towel at its back to protect clothing, then while it is softening the cuticle, thereby lessening resistance, insert the aspirating needle, administering just previously the anæsthetic hypodermic, then directing patient to swallow several times in succession, steady the gland with the fingers and plunge the needle into the cyst, carrying part of the insulated portion within its wall. To avoid puncturing posterior wall, I direct patient to keep on swallowing, if the point enters the posterior wall the external end of the needle will be raised by the act of swallowing. Where practicable, puncture from the median line as low down as possible and in a direction from below upwards, where punctures have to be repeated, do so at the same site, aspirate contents, then inject to distension, the warm saline solution, make the connections with battery which bring into circuit, increase strength slowly, from 30 to 50 m.a., has been my usual strength, from ten to twenty minutes duration, decrease strength slowly to 0, then remove positive electrode, empty cyst as completely as possible, dress, apply compress, and broad adhesive strip. When necessary operation may be repeated in one week, but it is preferable to let a longer time intervene.

Discussion.

Dr. Herdman said that in cases of goitre, relief is demanded sometimes on account of the degree of swelling, sometimes on account of its effect on the general health, and sometimes simply to remove the deformity. There are ordinarily three stages of enlargement, viz.: 1, a simple dilatation of the vascular structures; 2, a stage in which some of the follicles become obstructed by swelling, or by their own secretion possibly, and as a result, cysts are formed; and 3, a continuation of the disease process, characterized by an increase in the connective tissue sub-stroma. The first stage is amenable both to internal and to electrical treatment. Cystic goitres, and also hydroceles, in his opinion, could be better treated by other than electrical treatment, and this statement was the result of a careful examination of the literature of the subject. In the third stage, if the fibrous changes are generally diffused throughout the gland, the condition is very refractory to internal medication, and it is just this condition which seems most amenable to electrical treatment. Cystic goitre can be more successfully treated by the withdrawal of its contents, and the injection of iodine, than by the use of electricity. In the fibrous form, the vascularity of the gland has been so reduced, that medication has but little effect, and counter-irritation in this region cannot be kept up for any great length of time, and the disfigurement which it produces is often as objectionable as the enlargement itself. This is a dangerous region in which to thrust needles, but with a proper knowledge of the anatomy of the part, one can by electric action, after a prolonged course of treatment, secure absorption. But it should be remembered that electro-therapeutics is only brought into disrepute by attempting to accomplish with it impossibilities, and it was for this reason that he objected to its use in cystic goitres.

Dr. Kellogg quite agreed with the last speaker, as to the limitations of electrolysis in the treatment of goitre, but it

should not be forgotten that patients will sometimes refuse any form of cutting operation, while they will readily submit to electrical treatment. For such individuals, the electrical treatment of cystic goitre is appropriate. He had tried filling the cyst with a solution of iodide of potassium, and then subjecting it to electrolysis. This solution is an excellent conductor, and the nascent iodine which is liberated by the resulting decomposition, acts favorably on the lining membrane of the cyst.

Dr. Herdman remarked that he had also obtained satisfactory results from this method, but he had been unable to satisfy himself about the occurrence of this decomposition.

Dr. Kellogg replied that he knew from experiments outside of the body, that such a decomposition occurred, and this view was sustained by the fact that on withdrawing an intra-uterine electrode, wrapped with absorbent cotton saturated with a solution of iodide of potassium, after a treatment of uterine fibroid, the electrode would be found deeply stained with iodine.

Dr. Herdman said the conditions in the latter case were different, for the iodine was directly in contact with the poles.

Dr. Kellogg explained that in employing electrolysis of the cyst, he introduced a small aspirating needle, having a binding-post attached, and then, after evacuation of the cyst contents, and the injection of a solution of iodide of potassium, he attached the rheophore, and the state of his needles when withdrawn would show that the decomposition occurred.

The President said that he had been tempted to try this method of treating goitres. His experience led him to believe that those who reported so many successes, were confounding a symptomatic recovery with organic change in the goitre. The first essential to an intelligent electrotherapeutic treatment in any case, is an accurate knowledge of the pathology of the condition, and as the pathology of goitre is unknown, it is not surprising that indifferent results had been obtained. For many years, attempts had been made to treat the condition by measures directed to the sympathetic nervous system, because goitre is associated with exophthalmos and a rapid heart action. Dr. Louise Fiske Bryson, of New York, had first pointed out the remarkable fact that the chest expansion in those having goitre is greatly below the normal. Erb had called attention to the fact that the condition present in these cases, was often one of neurasthenia, and that, therefore, general systemic treatment by electricity was indicated. The speaker said he had recently treated a goitre measuring thirty-two inches in circumference, and occurring in an Italian woman. At present, he was trying the effect of electro-negative puncture, using an insulated platinum needle, and an indifferent electrode applied to the back of the neck. A sort of recess had formed in the hard fibrous mass. The punctures were made under electro-cocaine anaesthesia. He had also tried injections, and the percutaneous method, but with little success. In accordance with the recent theory that the changes in the thyroid gland are due to changes in the restiform bodies, he was now trying the effect of treatment with the negative pole at the base of the brain, and the positive pole at the forehead, and also the effect of long static sparks. In all of his cases there had been a very moderate diminution in size of the tumor, although after one or two months, the general appearance would be decidedly improved, and the exophthalmos not infrequently would have disappeared, and the pulse would be reduced thirty or forty beats per minute. Readers of recent French literature are aware that to Gautier is due the credit of calling attention to the electro-chemical method, or the method of injecting a solution of iodide of

potassium, and then obtaining the effects of free iodine by decomposing this solution by electrolysis. The method has also been applied to other conditions, with the idea that the electric current, by reason of the high conductivity of the solution, would penetrate more deeply into the tissues.

Dr. Goelet said that Gautier employed a cotton-wrapped platinum applicator moistened with a solution of iodide of potassium (1 to 10), to the inside of the uterus, using either the positive or negative pole according to indications, in the treatment of endometritis. A current of fifty to eighty milliamperes was employed, and the results were quite satisfactory. He also employed it in the female urethra, but the speaker, in repeating these experiments, had found it difficult to persuade patients in this country to submit to these applications in the urethra, though the applications to the endometrium were satisfactory.

Dr. Holford Walker was a little disappointed at the results obtained by Dr. Herdman in the treatment of fibrous goitres. Cystic goitres, like oedematous fibroids, do not come within the range of electrical treatment. Personally, he had been very successful in the electrical treatment of fibrous goitres with currents of 100 to 120 milliamperes. He molded a sheet of tin to the enlargement of the neck, then filled it with clay, and interposed two layers of cheesecloth between the clay and the skin. A large pad, covered with absorbent cotton, is used as the indifferent electrode, being placed between the shoulders, and kept constantly wet by an assistant with a solution of bicarbonate of soda. The sittings are of ten or twelve minutes duration, and repeated three times a week, yet his patients had not experienced the slightest discomfort from the use of these strong currents. He could recall a dozen cases in which the fibrous form had been cured in this way; and in two of them, nurses, the disease had existed since girlhood. In two cases two and one-half to three years had elapsed since treatment.

Dr. Herdman said that he would not regard any enlargement, even though very firm to the touch, as fibrous, unless it had developed very gradually, for considerable time is requisite for the occurrence of these fibrous changes. The President's remarks had been on the subject of exophthalmic goitre, which is very different from cystic goitre, although the two conditions are not infrequently associated. In the treatment of exophthalmic goitre, he could say positively that it had never failed, though in some of his patients there had been general oedema, tremendous interference with respiration, extreme anaemia, and a pulse beating as high as 160 per minute. He knew of no other disorder which yielded such brilliant results. His method was to apply the positive pole over the tumor, and the negative over the cervical enlargement of the spinal cord, and to employ the reversed continuous current. His idea of the pathology was, that it was an irritation of the centres which control the vasomotor system, and the circulation through the heart, and that, owing to this irritation, the thyroid gland became enlarged by dilatation of its blood-vessels, and Müller's muscle, which is situated back of the eyeball, is caused to contract, thereby producing the protrusion of the eyeballs. In cases of relapse, an increase in the rapidity of the circulation is always first noticed, and this is an indication for the use of tonics, and the resumption of the local treatment by the reversed galvanic current. He had tried all forms of the induced and continuous currents, and had had better and quicker results with the reversed galvanic current.

The President said it would be impossible to exclude exophthalmic goitre from such a discussion, as he had found the cystic form often associated with this type. He, too, had had no difficulty in curing the pure exophthalmic goitre, but he had never seen any marked reduction in size of a

distinctly fibrous goitre, although the other symptoms were decidedly relieved.

Dr. Dickson, in closing the discussion, said that we met in this Association on common ground, and he had ventured, therefore, to report his unsuccessful case. He was more than ever glad that he had done so, on account of the interesting and profitable discussion which the paper had elicited. We must look to the electrical engineers for much of our instruction, for they get the correct idea of the subject at the start, while most of us have to unlearn a great deal. He had not employed the term "current" in his paper, because he thought this conveyed a wrong idea. At the present time, he had probably no less than twenty cases of goitre under treatment in Toronto General Hospital. He thought the cases which are probably the least amenable to treatment occurred in girls of from fourteen to sixteen years of age, and did not consider it advisable to puncture in such cases, but would advise galvanism of the sympathetic instead. But while he had effected marked reduction in fibrous forms of long duration, treated exophthalmic forms by Beard and Rockwell's plan of central galvanization with most happy results, and had been successful with other forms, yet these had nothing to do with the subject of his paper, which dealt with one particular plan offered as a contribution to the treatment of one particular variety of goitre. He thought, as regards pathology, Amory in his works on electrolysis had made the best presentation of the subject he had seen. His use of the salt solution was for the purpose of securing a good electrode to fill the whole cavity and act on its walls, and not for the purpose of decomposition, etc. As to Dr. Herdman's suggestions of first injecting iodine, this had been tried without success in the case mentioned and in others since treated, while the electrolytic treatment produced very marked results.

With regard to employment of carbolic acid in hydrocele, and the relative severity of the treatment, while Dr. Herdman advocated the pure acid, in the case cited 50 per cent. carbolic had been injected, once without previously removing the fluid and again after removal of the fluid; after the first injection he was thirty-four days off work, while after the electrolysis he was off work for twenty days only, and need not have rested even that long. When properly performed, there is no noticeable disfigurement following operation. There was much more that might be said, but time did not permit reference.

"MEDICAL ELECTRICITY FROM AN ELECTRICIAN'S STANDPOINT."

By John J. Carty, Esq., Vice-president of the New York Electrical Society.

I think you will all agree with me that it is desirable for the advancement of the science of electro-therapeutics that there should be a thorough understanding between electricians and physicians.

The electrician who undertakes to examine the subject of medical electricity is puzzled by the strange electrical terms which he encounters in the literature of the subject, and which are used by the members of the medical profession with whom he may converse. This certainly does not look like a mutual understanding, and that no such understanding exists I have proved by the following test. I chose ten men holding the degree of electrical engineer from the principal colleges of this country, including Cornell, Columbia, Massachusetts Institute of Technology, Lehigh University and others, and asked them, each in turn, the meaning of three of the terms most frequently encountered, namely, faradism, franklinism, and galvanism. Not one of them knew the significance of these terms, although they were all familiar with the works of Faraday, Franklin and Galvani.

Thus it will be seen that either the curriculum of our American technical schools is at fault, or the terms employed are misleading. That the trouble is with the terms, I shall endeavor to prove in this paper.

Let us begin by inquiring into the meaning of faradism. It is a word undoubtedly founded on the magnificent discovery of Faraday, that a current of electricity may be generated by plunging a permanent magnet into a coil of wire. This is the fundamental principle of dynamo machines and motors, which, in connection with systems of electric lighting and power distribution, furnish an example of faradism worthy of the name.

The magnificent system of telephone communication which has grown up in this and other countries, together with many systems of telegraph and numerous other electrical appliances, are also founded upon the discovery of Faraday and may properly be called examples of faradism.

Faradism is referred to in medicine, however, in a narrow sense. It is applied to the current generated in induction coils, such as are found in ordinary "shocking machines." Galvanism, as used in medicine, refers to the current which may be obtained from the galvanic battery. And franklinism, as may be inferred from the kite experiment of that eminent Boston philosopher, refers to effects produced by discharges from Leyden jars, and Holtz or other static machines.

The superficial effects of these currents are so different, that there is, in the minds of many, a vague notion that the three currents are essentially different in their nature and represent three different kinds. Such, however, is not the case, for it is within the power of the electrician to generate a current by magnetic induction, based on the discovery of Faraday, which will produce all the effects which doctors call galvanism and franklinism; and on the other hand, by means of a galvanic battery and suitable current changing devices, to produce effects which are identical with those usually regarded as being peculiar to faradism and franklinism; and still further, although the problem would be more difficult, it would be possible, by means of suitable electro-static generators, to produce the effects of galvanism and faradism.

Thus it will be seen that the differences between the three "isms" are those of degrees only. The particular form of faradism used by doctors would be defined by electricians as an alternating current of a given frequency, having a certain value in amperes and volts. Galvanism would be spoken of as a direct current, constant in respect to its voltage and amperes; and if it were interrupted, the number of interruptions per second and their nature would be stated. In the case of franklinism, it is again a question of volts, amperes and interruptions, plus a phenomenon of oscillations and surging which will be referred to further on.

If this view of the case be correct, it is clear that the retention of such terms as faradism, franklinism and galvanism can result only in confusion and in preventing that harmony between the two professions which it is so important to effect. Owing to the rapid and astonishing developments of electricity now being made, it is imperative that the science should cast aside the relics of a former age, and scrutinize most carefully its nomenclature. As an example, the term "resistance," the correct meaning of which is so important to physicians, has lost its original significance. Not many years ago a piece of iron wire and a piece of copper wire, each measuring ten ohms, were thought to offer the same resistance to the passage of a current of electricity, regardless of its character. Now it is recognized that they are equal in resistance, only in respect to certain currents; when an alternating or an interrupted current is used, the resistance of the iron wire increases rapidly, while that of

the copper remains substantially the same. This peculiar behavior of the iron wire is due to its self-induction, and is now measured in units of inductance.

The inductance of a copper wire which is normally very low may be vastly increased by coiling it around a piece of iron. Such a coil properly proportioned might be connected across the poles of a powerful alternating current dynamo without producing any perceptible effect upon the wire; whereas if the same wire were laid out in a straight line it would be volatilized instantly. Again, if the same coil were attached to the pole of an ordinary 100-volt Edison dynamo giving a direct current, it would be destroyed.

Take the case of a condenser, which is a modification of the Leyden jar, consisting of plates of metal separated by an insulator. If such an apparatus be placed in the circuit of a 1,000-volt direct current machine, it will absolutely prevent the passage of any current. If, however, the condenser, was placed in the circuit of an alternating current machine, the full current would find its way through.

Thus you will see that the alternating current behaves in a paradoxical manner. In one case it cannot find its way through a coil of copper wire on account of the inductance; and in the other case it passes readily through the insulation of the condenser, although the insulation be perfect.

The phenomenon of an alternating current passing through an insulator calls for precision in our ideas of insulation; and while it may seem impossible that a substance can be an insulator and still allow currents to pass readily through it, yet such is the fact. The inconsistency is explained by an examination into the theory of displacement currents, which only can be referred to in this paper.

It now can be asserted with safety that the resistance of an inorganic body—using the term “resistance” in its broadest sense—is different for every degree and form of current.

Taking this view of the case, a more intelligent selection of currents can be made where the problem is to reach, in an electrical manner some specified portion of the human system; an organization of complex chemical structure, made up of solids and liquids; conductors and non-conductors. For aught any one can tell, it may in some portions possess high self-induction and in others obey the ordinary law of conductivity, and in still others, present conditions resembling the actions of condensers.

If the periodicity of the current is of such prime importance in the case of ordinary physical bodies, it certainly must be of some account in the more highly organized system; yet how little do we hear of the periodicity of faradic currents or of their characteristic curves?

Alternating currents for producing electrolysis are not employed in medicine, or as far as I know in any other science, yet electrolysis by alternating currents is possible and is of a peculiar kind. The alternations causing hydrogen and oxygen to be generated at each pole. These gases being in the nascent state will recombine under proper conditions. It would seem that the disturbance produced by this electrochemical action might be accompanied by certain physiological effects which would be of therapeutic value.

Some of the remarkable researches of recent experimenters have been of such a nature as to warrant mention here. That an intimate relation exists between light, heat and electricity has long been known, and the beautiful series of experiments testifying to this relationship, have become classical and are no doubt familiar to you all. Those who are acquainted with the methods of Faraday are not surprised to know that he suspected that light and electricity were propagated in one and the same medium, namely, the ether. The mathematical work of Clerk Maxwell, in support of the electro-magnetic theory of light, confirmed this view, and recently Hertz in Germany has generated electric

waves which were found to be propagated at the same rate as waves of light and which were, by means of prisms of pitch and other appliances, refracted, reflected and focused. In other words, they were found to obey much the same laws as rays of light, and to differ from light much the same way that heat does.

In the production of waves of proper length for his experiments, Hertz found it necessary to resort to a special application of Leyden jars and coils of wire to produce electrical oscillations of a frequency of many millions per second. The effects produced by these oscillations being so entirely new, it would seem that a wide field for investigation might be found in their application to medicine. And indeed I find that your honorable president Dr. Morton, has already done good work in this advanced field.

In passing over the recent advances of electricity, it would be impossible to overlook the name of Tesla, whose labors have carried us all into a region so strange that we have not yet recovered from our wonder. Still it has been shown that the forces which he set at work are capable of producing curious physiological effects, one of which I have in mind, being the peculiar sensation of warmth when the body is subjected to his electrical bombardment. It is impossible at present to speak of this remarkable action in more precise terms.

Some one said, after the experiments of Herz, that “Electricity has annexed the whole domain of optics. Let us hope that the labors of your Association may be so crowned with success that some day electricity will annex the whole domain of medicine.

Discussion.

Dr. Nunn asked about the use of the term, “alternating” current in connection with faradism. He thought the faradic current was not an alternating current, because it does not flow in either direction with equal stress.

Mr. Carty replied that an alternating current changes its polarity, but it does not necessarily do so any particular number of times per second. If the curve of a faradic current were plotted, it would be found that they never are the same twice in succession. He wished to particularly emphasize the fact that the term, “faradic current” does not describe, as medical men usually consider it does, an entity. As to the question of the polarity of a medical induction apparatus, he would say that when the vibrator closes the primary circuit, and induced current is produced in the coil in one direction, and on opening the circuit, an induced current in the opposite direction; there is an interruption in the vibrator, and an interruption in the current, but the interruption in the current does not necessarily coincide with that of the vibrator, as it may be affected by other currents in the neighborhood.

Dr. Herdman said that he had obtained some remarkable physiological effects with the alternating current, and he would like to know whether this current is practically the same at all times.

Mr. Carty said it was subject to variation, and it was only by a tracing apparatus that the exact nature of the current at any given time could be determined.

Dr. Nunn asked if it were possible to get a correct nomenclature for that form of electricity which medical men are accustomed to describe as “faradism.”

Mr. Carty said he could not on the spur of the moment, undertake to suggest a better nomenclature; he only wished to point out the inaccuracy of the present one.

Dr. Kellogg said that the paper just presented would prove valuable as an aid in arriving at a proper nomenclature. He had been using the alternating current of 12,000

vibrations and had also noticed some peculiar physiological effects from it, and on making tracings from it, had found that it was a true sinusoidal current.

The President said that he had long recognized in his teaching, the inadequacy of our conventional terms, faradism, franklinism, and galvanism, and about one year ago, he had suggested, half in jest, that the character of these various forms of electricity might be expressed in the form of prescriptions. Thus:

R. Milliampères (practically *nil*).
Volts 100,000.
Interruptions, 1 million per second.

This would indicate a static current.

R. Milliampères, 500.
Volts, 30.
Interruptions, *nil*.

This would represent a galvanic current.

R. Milliampères, 1-20.
Volts, 500.
Interruptions, 200 per second.

This would represent a faradic current.

Dr. Herdman said he had been frequently mortified at being called upon to explain the meaning of such terms, and he suggested that we abandon them for those commonly employed by electricians. We would then speak of the continuous current, the induced current, and the alternating current.

Mr. Carty, in closing the discussion, explained that in stating that a current varied so greatly in medical batteries, he referred particularly to the fact that medical men ignored the question of the *periodicity* of the current; this was not the fault of the makers. Dr. Morton's prescriptions were an exemplification of the saying, that "many a truth is spoken in jest," and it was a good starting point for a more exact nomenclature.

ELECTRICITY AS AN ANÆSTHETIC.

By William F. Hutchinson, A.M., M.D., Providence, R. I.
Disease means pain, pain is disease. Were euthanasia invariable, were infractions of natural law free from following nerve derangements and free from pain, doctors in medicine would be fewer and their diagnoses even more uncertain than at present.

That there is a general routine of cause and effect in everything is nowhere made plainer than when an animal cries out with pain, thereby drawing attention to injury or disease and calling for help. Where its language is inarticulate, the character of its cry is sufficient to tell its cause, to bring swiftly to it all relief that may be within call. Those of us who have been in action will never forget the heart-rending cries of wounded horses, to whose voices keen anguish lent peculiar tone, beseeching the kindly bullet that should end their pangs.

Pain is one of nature's laws; it is her signal of distress, and a sure accompaniment to all diseases where sense is not abolished. It is the mark at which modern therapeutics has discharged its heaviest artillery—to conquer which it is continually devising new weapons, which are so rapidly replaced that their inefficacy is at once apparent.

For all practical purposes, it is indeed doubtful if any drug has been discovered within the last fifty years better than time-honored mandragora—the juice of the Eastern poppy—or some of its salts. An eminent physician said to me lately, while discussing this subject: "The man who gives to the world a new, safe and effective pain-killer, will deserve to have his name inscribed beside those of Harvey and Jenner."

Every now and then some learned person announces the production of some new remedy that will accomplish this, but experience soon demonstrates the fallacy of his statements, and opium still holds first place.

While it is true that general suffering must be fought with some drug that will rapidly pervade the system through the circulation and allay it by impressing nervous centers, I believe that the time has come to announce that all forms of localized pain, not dependent upon structural changes of nerve centers or destructive metabolism of other tissues, may be relieved promptly and effectively, and often cured, by an induced electric current, whose interruptions are sufficiently frequent and whose voltage is small.

Also, that by the same means, there may be produced a local skin anæsthesia sufficient to permit of painless minor surgery, such as opening felons. This is thus far confined to the space beneath electrodes, and does not persist longer than two, or at most three, minutes of time.

For years I have been studying clinically the action of electricity upon nerves, muscles, pathological growths and imaginations, with results varied, but, upon the whole, satisfactory; even more so, I believe, than those ordinarily obtained from drugs. While these have been largely eliminated from my work, careful and systematic use has been made of all sanitary, dietetic and climatic assistance that experience could teach or study suggest.

In some cases, such as Graves' disease or Bell's paralysis, cures have resulted from electrical treatment where medicine alone, though in most skilful hands, had quite failed.

In the acute pain of neuritis, the lightning pains of locomotor ataxy, and the persistent aches of spinal congestion, I have succeeded better with galvanism than with any drug that was tried, with the advantage of avoiding stomach or other disturbances caused by lethal medicaments.

And in diseases like neurasthenia, where imagination with its *fons et origo*, the mind, needs careful attention, I am convinced that best results are derived from a judicious combination of electrical and personal equations.

Just which is the more effective, I am unable to say, but neither has succeeded by itself in my hands; each has required to be accompanied by the other. The large part played by the imagination in the production and maintenance of certain forms of functional nervous disease is well understood by medical men, and yet it is still chiefly treated by drugs, as if it were an organic change.

While disordered mental processes and a sick body may be caused by an unrestrained imagination, it is certain that both may be restored to health by measures directed to the mind alone, as in hypnotism, and in the practice of electrotherapeutics, I have found it best to employ all legitimate means.

As a result of long work by the bedside, I had become impressed with a conviction that pain, arising from no matter what cause, ought to be and might be combated by some form of electricity, but the resources of my battery rooms, although large, were inadequate to produce this desirable result invariably or with certainty.

Although a descending galvanic current often cures neuralgias accompanying sciatic or other nerve derangements, every now and then a case would come up in which it completely failed, without any apparent reason.

Faradization, with any form of coil or rheotome at command, was so uncertain as scarcely to be worth mentioning. The static spark was even less useful—in fact, I have of late discarded it as a pain-killer, believing that in a majority of cases, no matter how skilfully handled, it is as apt to aggravate as to relieve.

(To be continued.)

THE investigations of Drs. Abbott and McCormick, of the Johns Hopkins University, show that a solution containing 7 per cent. of acetic acid is more effective as a germicide than bichloride of mercury.

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MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, MARCH 18, 1893.

MILWAUKEE, March 11, 1893.

It is necessary for all those who are to read or present papers at our meeting, to send a copy of the same to the Secretary of the Section in which the paper is to be presented, and in time for him to forward to the Chairman of the Committee of Arrangements the title of said paper fully one month before the annual meeting, as required by the By-laws.

I shall be obliged to keep strictly to this provision of the By-laws and no title of any paper can be published in our program unless it reaches me through the Secretary of the Section in which it is to be read by May 6. I find that the Secretaries of the Sections desire to know what papers are to be presented in their Sections, and I think that is proper and right, and that the titles of all papers should come to the Chairman of the Committee of Arrangements through the Secretaries of the different Sections.

U. O. B. WINGATE, M.D.,

Chairman Com. of Arrangements.

W. H. WASHBURN, M.D., *Secretary.*

STATE LABORATORIES—NEBRASKA TAKES
THE LEAD.

In a recent article in THE JOURNAL appeared the following concise and pointed statement: "Medicine is neglected by the benevolent and by the State. From the former it has received almost nothing, and from the latter not a tithe of what has been lavished on technological schools; and this in spite of the fact that the State and all benevolent institutions have put a heavy tax of gratuitous and often compulsory service on the medical profession." This statement applies with particular and special force to the almost criminal neglect on the part of the State

to provide facilities for the study of the nature, the prevention and the cure of infectious diseases in man and in animals—a policy which can safely be said to have already worked such untold damage to the happiness and the prosperity of our people as to merit the opprobrium of suicidal. The State furnishes a liberal education to those who desire one; it educates lawyers, engineers, teachers, geologists, astronomers and chemists almost gratuitously, and it builds and maintains libraries, observatories and workshops, but nowhere in this great country do we find a single laboratory, built and maintained by the Government, to which men can go and find opportunity to study the etiology and prevention of the infectious diseases. There is no nobler pursuit for man to engage in than this study, the beneficial results of which are everywhere apparent in these days of biological research and of prophylactic and curative inoculation, and now that this study promises to bear rich fruit, it is singularly unfortunate and lamentable indeed that our own Government should have been so devoid of National pride and of instincts of self-preservation as to neglect so utterly to offer any inducements to original investigation in this line.

It is consequently both a great surprise as well as pleasure to notice that a bill has been introduced into the Legislature of Nebraska which provides for the erection and maintenance of a Patho-Biological Laboratory for original investigation of infectious diseases. The bill appears to have been wisely and judiciously framed; it aims to have the laboratory conducted according to the same principles which govern Koch's institute in Berlin, and the Nebraska laboratory will consequently, if this bill be passed, present opportunities for original research of infectious diseases from all points of view; it will be the first laboratory of its kind erected in this country, and Nebraska will merit the gratitude of her people at large and also of the whole American medical profession, if the required appropriation—a very moderate sum—is granted, because Nebraska will then have taken the first important step in the desired direction, and this will attract the attention and the emulation of sister States all over the Union. The human welfare and the number of important industries whose interests center in the work of such a laboratory make the beneficial local effects of such an undertaking, if successfully carried out, self-evident. The water and food supply will be improved and purified, epidemics of infectious diseases will become limited, and likely in time completely exterminated, prophylactic and curative inoculations will be developed and utilized; local boards of health will find their strongest help in this laboratory, and simultaneously rich opportunities are presented for all kinds of biological and pathological study and in-

vestigation, which American students now largely seek abroad. The fate of this bill will be watched for with close interest. The laboratory ought to be built at once. The question is: Does Nebraska understand her own good sufficiently well to appropriate the necessary money?

MORVAN'S DISEASE A VARIETY OF LEPROSY.

In 1883 DR. MORVAN, a physician practising at Lannilis, in Brittany, published (*Gazette hebdomadaire de médecine et de chirurgie*, August 31, 1883) a paper describing a number of cases of a singular and theretofore undescribed disease, to which he gave the name of analgesic panaritium, or pareso-analgesia, of the superior extremities. The symptoms are initiated by a weakness of the muscles, and sometimes by a pain in the forearm, that is succeeded by a swelling of the member, with the formation of deep palmar fissures and felons, usually painless, with phalangeal necrosis. It was for the latter condition that the physician was consulted, and at that period there was usually paresis of the muscles of the affected region that was afterward followed by atrophy of the thenar, hypothenar, and interosseous muscles. While faradization would produce energetic contractions in the muscles of the forearm, no reaction would be obtained in the atrophied muscles. There was analgesia of the forearm, sometimes of the arm, neck, and chest; and also thermal, but no other anæsthesia. There were vaso-motor disturbances. The existence of paresis, loss of pain, sense and thermal sense, circumscribed atrophy of the forearm or hand muscles, and trophic disturbances evidenced by the formation of cutaneous fissures and felons, constituted a congress of symptoms that has been called MORVAN'S disease in honor of the discoverer.

Since the time when MORVAN reported his first case many others have been described, and there has been a great diversity of opinion regarding its etiology. OSLER, DEJERINE, SACHS and ARMSTRONG, and others have regarded it as a peripheral neuritis, an opinion that is sustained by MONOD and REBOUL, who found the pathological changes of an acute parenchymatous and interstitial neuritis in the amputated finger of a patient affected with MORVAN'S disease.

GOWERS considered it a peripheral neuritis associated with syringomyelia, while GOMBAULT found in a necropsy, in a person that had suffered with MORVAN'S disease for forty-four years, intense changes in the peripheral nerves with a mild degree of sclerosis of the posterior bones and columns of the cord.

BERNHARDT, JOLLY, JOFFROY and ACHARD, and CHARCOT considered MORVAN'S disease as identical with syringomyelia, and the latter neurologist proposed that such cases be denominated syringomyelia of MORVAN'S type.

ZAMBACO-PACHA held (*Gaz. hebdomadaire*, 1891, p. 196)

that syringomyelia and MORVAN'S disease were identical, and that the disease was only a form of anæsthetic leprosy that had been, so to speak, attenuated by the manners and climate of Europe. This theory was warmly controverted by THIBIERGE (*Gaz. hebdomadaire*, 1891, p. 190); so ZAMBACO, with true scientific ardor, and well equipped for the investigation by reason of his long experience with leprosy in the Orient, went to Brittany in 1892. He has published (*Annal. de dermatologie et de syphilologie*, Dec., 1892) an illustrated report regarding many of the cases that he saw there, including among the number some of those that had been patients of MORVAN, that are undoubtedly cases of leprosy. He found examples of mutilating, of ulcerous, of anæsthetic, of tuberculous, and of ichthyosiform leprosy. Both he and DR. PITRES, of Bordeaux, have found the *bacillus lepræ* in the tissues of these patients. Besides these classic types he saw attenuated, mild, and frustrated forms of the disease. But he regarded the transition established in the various gradations of the disease that were seen.

He believes that most of the persons supposed to be affected with syringomyelia are suffering from an attenuated or slightly modified form of anæsthetic leprosy, that leprosy constitutes, like scrofulosis, a large class of diseases that are to-day considered as morbid entities, among which may be classed sclerodermia, and those undetermined conditions designated by the name of morphœa.

VIDAL, GAUCHER, BESNIER, and BARTHELEMY have accepted ZAMBACO'S demonstrations that MORVAN'S disease is but a form of leprosy, and the neurologists are relieved from further controversy regarding its etiology, as well as enabled to decrease their nosology by one term.

PROFESSIONAL UNIFICATION.

ILLINOIS STATE MEDICAL SOCIETY,

CHICAGO, February 10, 1893.

In order to unify the profession of this State and thus greatly increase its power for the general good, as well as to augment its scientific work, we are making an effort to bring into the Illinois State Medical Society all of those interested in society work. There are now enrolled 500 of our best physicians; but this is not enough. There should be a great society in Illinois embracing, as do the Massachusetts and Indiana State Medical Societies, practically all of the representative physicians in the State.

The Society has been organized so that any member of a local medical society may become a member of the State society, on the recommendation of the President and Secretary of the local organization and payment of annual dues for the current year.

As there are district or county medical societies practically within reach of every physician in the State, there is no reason why any good man may not become a member.

We want your influence and wish to see you at our meetings.

Inclosed is a blank application which I hope you will fill out and return to the Treasurer or myself as soon as it has been signed by your President and Secretary whose names

appear below. This if accompanied by the annual dues will place you on our rolls with dues fully paid for 1893 and will entitle you to the Transactions for the next meeting.

A copy of our constitution may be had by writing to our Secretary, Dr. D. W. Graham, corner of Monroe and Wood Streets, Chicago.

Hoping to hear from you soon and that we may have the pleasure of seeing you at our next meeting, I am yours truly,
E. FLETCHER INGALS, *President*.

The above circular letter has some points of both personal and professional interest to every medical practitioner in the State of Illinois, and in fact in every other State.

The first sentence and key note is an appeal for a unification of the medical profession in a practical membership in the State Medical Society, thereby making it possible to greatly increase its influence and consequent power for general good. This general good applies not only to the welfare and continued elevation of the individual members of the medical profession, but also is directly beneficial through them to the people of the whole commonwealth. Just in proportion as the members of the medical profession equip themselves for the intelligent conduct of their life work, will they become important factors in the community, State and Nation.

The common people of our country are every year becoming better educated, and their education means enlightenment as to conditions most conducive to their health and happiness. This enlightenment also causes a looking to the medical profession for means of protection against all preventable diseases.

Just as the aggregate of knowledge possessed by the whole medical profession in the State is by comparison greater than that of one county or individual, so its power for the accomplishment of good will be found to exist in a similar ratio.

The most learned and accomplished physician in any city or county cannot in any sense or way exert an influence equal to that of all the physicians of his city or county. Nor can the entire body of physicians in any one State exert the potential influence of those of all the States.

The President of the Illinois State Medical Society says in his letter: There are now enrolled five hundred members of the State society. As every county should have its county society, with an enrollment of the name of every physician in the county, so the county enrollment should constitute the enrollment of the State society. This would give the Illinois State Medical Society a membership of more than five thousand in place of five hundred. And the influence of the State society in all public affairs would be increased ten-fold. We would have our readers stop right here, and think of the enormous value of a ten-fold increase of professional influence in this State. And that the same reasoning applies in proportion to the similarity of conditions to every other State in the Union.

The several State societies being thus organized and constituted of the entire membership of the county societies, we would have all the State societies focus in one grand federation—The American Medical Association. Will every one of our readers stop again for the consideration of the immensity of such an organization as this, and how its power for work, its power for good to all the people of this great Nation, would be absolutely irresistible.

The State societies being thus organized and constituted of an enrollment of all the physicians in every county, would have, and be able to exert, an influence that would be felt in the government of every charitable, eleemosynary and educational institution in the State. We have faith to believe that the time would never come under such conditions, when insane asylums, charity hospitals and infirmaries would be made political partisan machines. Would not that alone inure greatly to the advantage and interest of all the people? The State Medical Society would never recommend the appointment of a health commissioner who would permit an engineer of a city waterworks to continue pumping foul, poison laden water from a near shore intake for weeks and months, when he had a comparatively pure water at his command, but which was only obtainable at an expense of a little more fuel and steam. Such officials are invariably of the radical partisan order, and their crime is manslaughter. It should be one of the functions of a city health officer to prosecute such men as criminals, and that with vigor.

The Chicago Medical Society showed what professional influence it was able to exert when it made a report upon the vile character of the city milk supply, and obtained legislation that gives a reasonably good inspection and guarantee of pure milk.

The enrollment of every physician in his county society would speedily place the county infirmary within its supervision, and give every schoolhouse, church and public building a periodical sanitary inspection. With the medical profession casting their votes as one man for purposes of reform, their power would be speedily recognized.

With a federation of such complete State organizations, we think there is no one so near-sighted as not to be able to see the commanding influence that would be exerted whenever special Congressional legislation is asked for what is believed by the medical profession to be in the interest of the people.

The medical profession is now and ever will be non-partisan on all such issues.

The American Medical Association petitioned Congress to enact a law creating a Cabinet officer of Public Health. That petition was unheeded, which may have been because the Association consisted of less than six thousand delegates. Perhaps the result would have been different if the petition had been backed by the

more than one hundred thousand physicians of the United States, speaking directly to every senator and member of Congress. It is some satisfaction to know that the political partisanship of the National government changed soon after the turning of a deaf official ear to the righteous petition of the American Medical Association.

That assurance of success in this and other directions may in the future be rendered doubly sure, we are constrained to ask every physician in the State of Illinois who has the good of his profession at heart to respond to the earnest request of DR. INGALS by securing the enrollment of his name as a member of the State society. Every member of the State society should constitute himself a committee of one to bring in ten more members, and the good work will be speedily accomplished. This matter should be taken up by every local society in the State. What is said of the Illinois State and local societies we say to those of every other State.

We believe the committee on revision of the Code of Ethics, Constitution and By-laws of the American Medical Association will make such a report as to commend it so fully to the minds of all right thinking physicians, that they will be constrained to give it their whole hearted support. That being done, such a National, State and county organization as that we have outlined is practical and may be carried into effect.

Reference has only been made to the great value of society organization as it pertains to the welfare of the individual and to the State. Co-equal benefits would accrue to the medical profession in the furtherance of the science and art of medicine. This would come about through the necessary endowment of medical departments in universities, from which would follow a better qualified grade of medical students, who would in turn receive instruction from better qualified and better paid instructors. From this source will come the medical profession of the future.

ASSOCIATION NEWS.

PRELIMINARY REPORT.

The following is the preliminary report of work for the approaching meeting of the American Medical Association in Milwaukee in June. Members of the Association who contemplate reading papers before the Section on Anatomy and Surgery, and also those who may wish to discuss such papers as have been or may be offered, will please communicate with

JAMES T. JELKS, M.D., *Chairman,*
Section on Anatomy and Surgery.

Nephrectomy, by Dr. J. H. Carstens, Detroit, Mich.
Gastroliths, by Dr. W. E. Outten, St. Louis, Mo.
Dr. H. O. Walker, Detroit, Mich. Title not given.
Nephrectomy or Nephrotomy? By Dr. Joseph Price, Philadelphia, Pa.
Appendicitis, by Dr. Joseph Hoffman, Philadelphia, Pa.

Dr. Joseph Pancost, Philadelphia, Pa. Title not given.
Dr. John B. Roberts, Philadelphia, Pa. Title not given.
Amputation below the Knee and Artificial Limbs for same, by Dr. Mordecai Price, Philadelphia, Pa.
Dr. Ernest Laplace, Philadelphia, Pa. Title not given.
Prophylaxis of Intestinal Obstruction following Operations, by Dr. W. Easterly Ashton, Philadelphia, Pa.
Appendicitis, by Dr. E. E. Montgomery, Philadelphia, Pa.
Diagnosis and Treatment of Chronic Intestinal Obstruction, by John B. Deaver, Philadelphia, Pa.
Treatment of Compound Fractures, by Dr. Paul Vasterling, St. Louis, Mo.
Dr. F. Gaston McFadden, Atlanta, Ga. Title not given.
Dr. N. Senn, Chicago, Ill. Title not given.
Dr. Christian Fenger, Chicago, Ill. Title not given.
Dr. Donald McLean, Detroit, Mich. Title not given.
The New Treatment of Hernia, by Dr. Alexander Dallas, New York.
Dr. W. H. Wathen, Louisville, Ky. Title not given.
Dr. Hunter McGuire, Richmond, Va. Title not given.
Dr. C. A. L. Reed, Cincinnati, Ohio. Title not given.
Dr. Dessasure Ford, Augusta, Ga. Title not given.
Ample Incision, by Dr. George Ben Johnson, Richmond, Virginia.
Dr. W. C. Dugan, Louisville, Ky. Title not given.
Dr. H. O. Marcy, Boston, Mass. Title not given.
A Rational Treatment of Prostatic Obstruction in Old Men, by Dr. George W. Broome, St. Louis, Mo.

BOOK REVIEWS.

A TEXT-BOOK OF PRACTICAL THERAPEUTICS, WITH ESPECIAL REFERENCE TO THE APPLICATION OF REMEDIAL MEASURES TO DISEASE AND THEIR EMPLOYMENT UPON A RATIONAL BASIS. By HOBART AMORY HARE, M.D. B.Sc., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia, etc. Third Edition, Enlarged and thoroughly Revised. Philadelphia: Lea Brothers and Co. 1892.

Only two years have elapsed since the first edition of this book appeared, and it was exhausted within six months of its publication. It is fair to construe the call for a third edition within so short a time as a generous endorsement of the first two, although we have no intimation as to the size of those editions.

The first 378 pages are devoted to a consideration of general therapeutics, drugs and other remedial measures, and foods for the sick. The remainder of the 698 pages is taken up by a practical application of these remedies to the cure of various diseases, by the tables of doses and remedies, and by the indexes of remedies and diseases.

The plan of the book is a model one. The drugs and diseases are readily found, without reference to the indexes, alphabetically arranged as in Quain's Dictionary of Medicine. The English names of diseases are adopted.

The articles in the domain of the specialties have been prepared by Drs. De Schweinitz, Edward Martin, B. C. Hirst and J. H. Reeves.

Many drugs of recent introduction, as salophen, diuretin, euophen, dermatol, the salts of strontium, etc., are included in this edition. The broad and fair manner in which the author treats the investigations of others is manifested in the page on diuretin. He says: "In all cases in which the writer has tried sodio-salicylate of theobromine he has failed to see any effect produced, and while he has no confidence in the drug, mentions it because others claim to have obtained results from its use."

The work is designed as a text-book for undergraduates as well as for practitioners, and will prove very satisfactory with some exceptions. It is our duty to criticise such exceptions. Let us look up the subject of menthol. The index refers us to page 253. Menthol is not there. The title is found on page 230, and a note here refers us to page 270, which contains the article on peppermint, and finally on

page 271 we find what we want. Another disappointment greets us here in the vague style in which the subject is presented. The author informs us that in coryza menthol produces "great relief in the saturated solution of about one grain to the ounce." The ounce of what? He does not say what menstruum will be saturated in the proportion of one grain to the ounce. The only solvents mentioned are water, alcohol and ether. He cannot mean oil or liquid vaseline. The latter is used universally by rhinologists as the solvent, but even 100 grains to the ounce will not saturate it. He speaks of the spray, but the only solvents given are those not employed for the purpose of sprays.

Of benzoin the author says: "The drug cannot be used in an atomizer, as it clogs the tips." It is in common use in the form of benzoinol and benzoated lavoline, alone and in combination with other inhalants, for spraying the nose and throat with atomizers. These preparations of benzoin do not clog the atomizer tips.

On page 168 the dose of elaterin reads from $\frac{1}{3}$ to 1-16 of a grain. It was probably intended to read from 1-30 to 1-16. The cipher of the 1-30 had undoubtedly dropped out of the printer's form before it went to press. With this exception the doses agree with those given in the U. S. Dispensatory.

The section on the treatment of diseases is full of interest and suggestiveness. It abounds with new remedies that lend a freshness and charm to the text. The treatment of asthma occupies three pages. Even the pathology is discussed, and the conclusions are logical and are warranted by the latest reliable researches. The same number of pages is devoted to the complex complaint called biliousness, and the treatment of the subject is unusually rational and admirable. Bright's disease, acute and chronic, is given less than two pages.

It is unfortunate that there are such irreconcilable differences of opinion and experience between honest and competent observers. Dr. Hare prescribes caffeine with the utmost confidence in its efficacy. Indeed, he places it first in the list of diuretics in his physiological classification of drugs; but a well-known specialist and authority in renal diseases recently expressed to the writer his utter lack of confidence in this same drug. The book abounds in such reminders.

Poultices, so abhorred in the late writings of the great American surgeon, are accorded an honored place in the treatment of inflammations.

There is a good article of four pages on coryza, and about six pages on chronic catarrh. Typhoid fever and syphilis are each given five pages, tuberculosis six, puerperal disease nine, and pneumonia ten pages.

The index is carelessly compiled. Page 29 is given for antifebrin instead of 39; 20 for atomization instead of 21 and 22; 21 for hypodermic medication instead of 20.

The new remedies and the exhaustive polysyllabical chemical nomenclature have enlarged this edition. As an example of the extravagant and lavish multiplication of letters and the almost paralyzing demands upon the tongue, unequalled by the Egyptians, the writer would mention (if he could) the chemical name of hypnol with its forty-two letters. Here it is:

Manotrichloracetyldimethylphenylpyrazolon.

TRANSACTIONS OF THE TWENTY-THIRD ANNUAL SESSION OF THE MEDICAL SOCIETY OF VIRGINIA HELD AT ALLEGHANY SPRINGS, VA., SEPTEMBER 13, 14, AND 15, 1892. Richmond: J. W. Ferguson & Son, Printers; 1892. Pp. 308.

This volume contains the usual papers and discussion of the annual meeting of the Medical Society of Virginia. The papers all appear to be of a practical value, embodying mostly reports of difficult cases and operations, but there are also discussions on such general subjects as vertigo,

bacteria and disease, puerperal fever. A commendable feature of this report is a biographical register of the fellows of the Society, which occupies the last fifty pages of the book. The Society numbers 728 active and twenty-five honorary fellows.

MISCELLANY.

NEW BY-LAWS, PAN-AMERICAN MEDICAL CONGRESS.—*Languages*.—By-Law IX. Papers may be read in any language providing that authors of the same shall furnish the Secretary-General with an abstract not exceeding six hundred words in length in either of the official languages, (English, Spanish, French or Portuguese) by not later than July 10, 1893, and providing further, that a copy of each such paper shall be furnished in either of the official languages, at or before the time of the meeting, to the secretary of the Section before which the same shall be read. Remarks upon papers may be made in any language, providing that members making such remarks shall furnish a copy of the same in either of the official languages before the adjournment of the session.

Publication.—By-Law X. All papers read either in full or by title shall be immediately submitted for publication in the Transactions (Special regulation 3) but authors may retain copies and publish the same at their pleasure after the adjournment of the Congress.

Constituent Organizations.—By-Law XI. All medical, dental and pharmaceutical organizations, the titles of which have been transmitted with approval to the Committee on Organization, or which may hereafter be transmitted with approval to any member of the International Executive Committee, each for his own country, shall be subject to election by the Executive Committee, approved by the President as constituent bodies of the first Pan-American Medical Congress, and each organization thus constructed shall have the right to designate as delegates all of its members attending the Congress, but no such organization shall meet at the time and place of meeting of the Congress as a distinct body, providing that the secretary of each such constituent body shall furnish a list of officers and a statement of the number of members of his respective organization to the Secretary-General not later than sixty days before the meeting of the Congress and shall forward a list of delegates chosen, to reach the Secretary-General before the opening of the Congress.

PRELIMINARY PROGRAMME of the eighth annual meeting of the Association of American Physicians, to be held in the Army Medical Museum and Library Building, Washington, D. C., on May 30, 31 and June 1, 1893:—

1. The President's Address, A. L. Loomis, New York.
2. Discussion on Myxœdema. Referee—F. B. Kinnicutt, New York. Co-Referees—J. J. Putnam, Boston, M. Allen Starr, New York.
3. Sporadic Cretinism in the United States, William Osler, Baltimore.
4. Supplementary Report on Amœbic Dysentery, William Osler, Baltimore.
5. Some Problems in the Etiology and Pathology of Texas Cattle Fever and their bearing on the Comparative Study of Protozoan Diseases, Theobald Smith, Washington.
6. Experiments with the Bacillus Diphtherie, A. C. Abbott, Philadelphia.
7. The Parasitic Nature of Cancer, Heneage Gibbes, Ann Arbor.
8. A New Pathogenic Bacillus, H. C. Ernst, Jamaica Plains.
9. Gonorrhœal Myocarditis, W. T. Councilman, Boston.
10. The Prophylaxis of Cholera with especial reference to Immunization, E. O. Shakespeare, Philadelphia.
11. Creosote in the Treatment of Tuberculosis, J. T. Whitaker, Cincinnati.
12. On a Simple Continued Fever, G. Baumgarten, St. Louis.
13. The Treatment of Typhoid Fever, S. A. Fisk, Denver.
14. The Intestinal Treatment of Chlorosis, F. Forchheimer, Cincinnati.
15. Probable Origin and Early Symptoms of certain Chronic Diseases of the Kidneys, C. S. Bond, Richmond, Ind.
16. The Reactions of the Urine with Ether, A. H. Smith, New York.

17. A Study of Addison's Disease and of the Adrenals, W. G. Thompson, New York.

18. Two Cases of Cystin Calculus, James Tyson, Philadelphia.

19. Two Cases of Diaphragmatic Hernia, James Tyson, Philadelphia.

20. Subphrenic Abscess, with especial reference to cases which simulate Pneumo-Thorax, A. L. Mason, Boston.

21. Subphrenic Abscess, S. J. Meltzer, New York.

22. Sarcoma of the Lung, with Specimen, D. W. Prentiss, Washington.

23. Pulsating Pleural Effusions, Jas. C. Wilson, Philadelphia.

24. The Importance of Uterine Displacements in the production of Vomiting during the early stages of Pregnancy, G. M. Garland, Boston. To be discussed by Drs. W. T. Lusk and W. M. Polk.

25. Experimental Observations concerning the Nature of Chorea, H. C. Wood, Philadelphia.

26. W. M. Polk, New York, title to be announced later.

There will probably be time at the meeting for the reading of two or three papers more than those on this program. Members who desire to contribute such papers are requested to send the titles of them to the Secretary, Dr. Henry Hun, 149 Washington Ave., Albany, N. Y.

The Constitution provides that papers shall not exceed thirty minutes in the reading.

THE AMERICAN ASSOCIATION FOR THE STUDY AND CURE OF INEBRIETY will hold a special meeting at the hall of the New York Academy of Medicine, No 19 West 43d Street, New York City, March 23, 1893, at 8 P.M.

The subject for discussion will be "Specific Remedies for the Treatment and Cure of Alcoholic and Opium Inebriety."

Short papers will be read by Dr. Norman Kerr, of London; Drs. Kiernan, Clevenger, and Moyer, of Chicago; Dr. Hughes, of St. Louis; Dr. Peterson and Clark Bell, Esq., of New York; Drs. Mason, Mann, and Wood, of Brooklyn; Dr. Day, of Boston; Dr. Crothers, of Hartford; Dr. Russell, of Winchendon, Mass.; Dr. Quimby, of Jersey City, and others.

MEDICAL ASSOCIATION OF GEORGIA.—The Forty-fourth annual session of the Medical Association of Georgia, will be held in Americus on April 19, 20 and 21st.

President, A. A. Smith, M.D., Hawkinsville; Vice-Presidents, Geo. J. Grimes, M.D., Columbus, Robt. H. Taylor, M.D., Griffin; Secretary, Dan H. Howell, M.D., Atlanta; Treasurer, E. C. Goodrich, M.D., Augusta.

BOIL IT DOWN.*

Just a word to those good doctors,
Who are meditating deep,
On a paper they're preparing,
Full of thoughts too good to keep—
Boil it down.

'Tis not words, but facts, we're wanting;
Therefore prune and pare with pains
Your scholastic evolution
Till an essence pure remains—
Boil it down.

Let the meeting at Milwaukee
Be a feast for every soul
Who attends. And let the papers
Be as brief as Moses' scroll—
Boil them down.

You'll remember former meetings,
There were papers, less or more,
Hardly worth the time to listen—
We have all been there before—
Boil it down.

Welcome every fresh advancement,
Hail, each new discovered fact,
But in writing a description
That attention will attract—
Boil it down.

And remember that discussions
All of interest all agree;
So your paper should invite it;
Make it short as well may be—
Boil it down.

—W. E. WARD, M.D., Fenton, Mich.

DR. A. R. BATES, of Cleveland, O., is a member of the Advisory Council of the Ophthalmological Section of the Pan-American Congress.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from March 4, 1893, to March 10, 1893.

First Lieut. Henry R. Stiles, Asst. Surgeon U. S. A., will be retired from duty at Jefferson Bks., Mo., on receipt of this order at that post, and will report in person to the commanding officer, Ft. Omaha, Neb., for duty at that post.

Capt. Marcus E. Taylor, Asst. Surgeon U. S. A., will be relieved from duty at Vancouver Bks., Washington, at the expiration of his present leave of absence, and will report in person to the commanding officer, Ft. Logan, Col., for duty at that post.

OFFICIAL LIST OF CHANGES of Stations and Duties of Medical Officers of the U. S. Marine-Hospital Service, for the four weeks ended March 3, 1893.

Surgeon R. D. Murray, when relieved, to proceed to Key West Quarantine for duty. March 1, 1893.

Surgeon P. H. Bailhache, to proceed to New York City for duty. February 13, 1893.

Surgeon George Purviance, detached as chairman, board of examiners, February 13, 1893. To inspect Reedy Island, Delaware River. February 23, 1893.

Surgeon W. H. H. Hutton, to proceed to Solomon's Island, Md., as inspector, February 6, 1893. When relieved, to proceed to Detroit, Mich., for duty. February 13, 1893.

Surgeon J. B. Hamilton, detailed chairman of board to prepare quarantine regulations, February 16, 1893. Detailed as chairman of board to examine officer Revenue Marine Service. February 28, 1893.

Surgeon H. W. Smith, detailed as member of board to prepare quarantine regulations. February 16, 1893.

Surgeon J. M. Gassaway, detailed as member board of examiners. February 13, 1893.

Surgeon G. W. Stoner, to proceed to Baltimore, Md., for duty. February 13, 1893.

P. A. Surgeon H. D. Geddings, detailed as recorder of board to prepare quarantine regulations. February 16, 1893.

P. A. Surgeon C. P. Wertenbaker, detailed as recorder of board to examine officer Revenue Marine Service.

Asst. Surgeon A. W. Condict, ordered to examination for promotion. February 14, 1893.

Asst. Surgeon S. H. Hussey, ordered to examination for promotion. February 14, 1893.

Asst. Surgeon J. C. Perry, ordered to examination for promotion, February 14, 1893. To proceed to Savannah, Ga., for temporary duty. February 25, 1893.

Asst. Surgeon A. C. Smith, ordered to examination for promotion. February 14, 1893.

Asst. Surgeon M. J. Rosenau, to proceed to Hamburg, Germany, for temporary duty, February 14, 1893. When relieved, to proceed to Antwerp, Belgium, for duty. February 25, 1893.

Asst. Surgeon J. A. Nydegger, to proceed to Charleston, S. C., for temporary duty. February 24, 1893.

Asst. Surgeon J. M. Eager, to proceed to Key West, Fla., for duty. March 1, 1893.

Surgeon John Godfrey, when relieved, to proceed to San Francisco, Cal., for duty. February 13, 1893.

Surgeon Fairfax Irwin, detailed for duty in office of the U. S. Consul, Marseilles, France. February 25, 1893.

Surgeon W. A. Wheeler, detailed as recorder board of examiners, February 13, 1893. Detailed as member of board to prescribe quarantine regulations. February 16, 1893.

P. A. Surgeon Eugene Wasdin, to proceed to Baltimore, Md., for temporary duty. February 23, 1893.

P. A. Surgeon J. H. White, to proceed to Hamburg, Germany, for duty. February 27, 1893.

P. A. Surgeon P. M. Carrington, granted leave of absence for seven days. March 1, 1893.

P. A. Surgeon L. L. Williams, when relieved, to proceed to Charleston, S. C., for duty. February 14, 1893.

P. A. Surgeon W. D. Bratton, detailed as member of board to examine officer Revenue Marine Service. February 28, 1893.

P. A. Surgeon J. J. Kinyoun, detailed as member of board to prepare quarantine regulations. February 16, 1893.

P. A. Surgeon G. M. Guiteras, to proceed to Gulf Quarantine station for duty. February 23, 1893.

* Relative to the meeting of the A. M. A., at Milwaukee, Wis., June, 1893.

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No. 12.

ORIGINAL ARTICLES.

PNEUMONIC FEVER—ITS SYMPTOMATOLOGY.

BY EDWARD F. WELLS, M.D.,

OF CHICAGO.

CIRCULATORY SYSTEM.

The characteristics of the pulse in pneumonic fever are so striking that they could not escape the attention of the earliest medical observers, and we find them mentioned by Hippocrates, Aretaeus, Caelius Aurelianus, and others down to the time of Razes¹ who made a special study of the subject. To be sure the deductions to be drawn from the phenomena observed previous to the time of Harvey² must have been largely overdrawn, yet many of the facts were clearly and tersely stated.³

At the beginning of the attack the pulse is usually somewhat, and occasionally greatly accelerated, although in rare instances it remains normal, or even may be diminished in frequency.⁴ When the disease is once fully established, however, the almost invariable rule is for the pulse to be accelerated, ranging usually from 90 to 120 per minute. At this stage of the disease it is rare to meet with a pulse under 80, but the converse does not hold good, for a rate beyond 120 is by no means infrequent. In a certain proportion of cases the pulse will mount up to 140, 160, 180, 200, or even more, per minute.⁵ Such cases should be viewed with the greatest apprehension,⁶ although cases sometimes recover after very great frequency of the pulse.

A female, aged 24, with pneumonic fever, locally involving the bases of both lungs, was first seen on June 10, 1855. Her respirations were 78 per minute, breath fetid, lips cold and livid and the pulse was intermittent and so rapid that it could not be counted. On the following day the pulse was stronger and less intermittent; the respirations had declined to 58 and she began to expectorate muco-purulent masses. On the 13th, the pulse was 128 and the respirations 42 per minute. On the next day the pulse and respiration had further declined to 104 and 38, respectively, after which there was a gradual decline of all the symptoms until convalescence was established on the 20th inst.⁶

A widow, aged 35, of German birth, was taken, Jan. 21, 1877, with chilly sensations, alternating with flashes of heat and profuse perspiration, followed by the ordinary symptoms and signs of pneumonic fever, locally affecting the lower lobe of the right lung. When first seen, on the third day, the pulse was 152 per minute. On the fourth day it was 112, fifth day 108, sixth day 132, seventh day 120, eighth day 100; ninth day 130 and tenth day 86, after which it did not again rise above the normal. Veratrum viride was used throughout the course, but an irritable stomach prevented the use of any but very small doses.

A young man, aged 20, of dissipated habits, was taken June 9, 1880, at 1 A.M., with a severe chill, followed by a very severe attack of pneumonic fever, locally affecting the entire right lung. During the first few days the pulse was said to have ascended as high as 200 per minute. When I first saw the patient, in consultation, on the seventh day the pulse was 140. On the following day it was 80 and only once afterwards did it pass beyond 100.

In only three other of my successful cases did the pulse

exceed 140; in all the other cases a pulse of more than 140 was met only as a precursor of death. I refer, of course, to adult patients. A high pulse rate was very frequently met with in infantile cases in which recovery ensued.

Of 154 successful cases analyzed by Bleuter,⁷ 54 had pulses ranging from 120 to 150 per minute. Borland,⁸ in his analysis of 190 cases found a pulse rate of over 150 only as a precursor of death. Eddes,⁹ in 52 cases, found a pulse of 150 twice and 160 and 180 once each all fatal, and of 160 once with recovery. Griessinger,¹⁰ from an analysis of 72 cases, concludes that in cases with a pulse of more than 120, one-third will prove fatal. Smith,¹¹ records a recovery after a pulse of 215.¹² Sauter,¹³ met with two cases, females, 22 and 18 years of age, with pulses of 152 and 168, respectively, with recovery. Kreider¹⁴ records the case of a child, aged 10, with a pulse of over 160, with recovery, and Scheef the case of a child of 4 years with a pulse of 172 with recovery. Homburger¹⁵ mentions the case of an adult who survived a pulse of 160 for three days but finally died. Of 83 cases analyzed by Schliesinger,¹⁶ the pulse reached 150 to 160 in three instances—all fatal.

Usually the pulse is greatly accelerated in weakly persons, and those who are the subjects of organic or functional heart disease. This is also true of women during menstruation¹⁷ and pregnancy.¹⁸ In children the pulse is apt to be very frequent, ranging, usually from 120 to 140 per minute, and exceptionally ascending to 180 or 200, or it may be uncountable.³⁰ The younger the child the more rapid the pulse.²¹

The pulse is more rapid in the evening than in the morning, sympathizing with the rise and fall of the other general symptoms. Some cases, perhaps of evident gravity, are remarkable for little or no increase, or perhaps actual diminution of the pulse rate, and this often in the face of a high fever. The result, according to my experience, is often unfortunate. Several such cases have fallen under my observation and have been noticed by others.²²

In the aged the pulse rate is apt to be less than in the prime of life.²³ It is sometimes very rapid at the beginning, but becomes slower as the attack proceeds. It is often irregular and intermittent. Owing to the great variability in the rate, rhythm, power and volume of the pulse in the aged, the conclusions drawn from its characteristics are of less value than in earlier years. For very obvious reasons it should be observed at the heart.²⁴

There is usually a very definite relation existing between the pulse, respiration and temperature—the elevation of the one above the normal being accompanied by increase in the other two.

This was long ago recognized. "The frequency of the actual pulsations is always in a direct ratio with the frequency of the respiratory movements; however, in the last periods of life it is often observed that the pulse loses its frequency and seems to have returned to its natural state, though the respirations become more and more accelerated. This is invariably a fatal sign."²⁵

A steadily rising pulse with falling temperature is also very ominous.²⁶

What is the cause of the increased frequency of the cardiac contractions in this disease? It has been supposed that the fact might be explained on

mechanical grounds; that, inasmuch as a considerable amount of lung tissue is rendered useless for sanguineous aëration, and as the gross amount of blood is not diminished, therefore if this is all to be exposed to the action of the air in the remaining effective portion of the lung it must necessarily be forced through the vessels at a greater speed than ordinarily, and in order to attain this increased velocity, more frequent contractions of the heart are necessary. This theory is specious, but, I apprehend, unsubstantial, as must be clear to any one upon the slightest reflection. Thus the same rapidity of pulsation appertains to other febrile diseases in which there is no basis whatever for such a mechanical explanation. Also, in this disease the pulse is often but slightly and occasionally not at all accelerated, although there may be extensive pulmonary consolidation, or *vice versa*, and it has not as yet been proven that there is any relation between the amount of hepatization and the frequency of the pulse. Again, in this malady the pulse rate falls, often suddenly, to or even below the normal at the conclusion of the exudative process, but long before the inflammatory products have been absorbed, and at a time when all the grounds for the mechanical theory are yet present in their entirety. That the mechanical irritation of the endocardium by an irritant circulating in the blood is not the sole cause is proven by the fact that in some of the most severe cases the pulse remains comparatively slow. The most probable cases of the acceleration of the pulse is that of a poison producing an impression upon the inhibitory circulatory centres of the brain, these centres possessing greater or less resisting power in different persons, or in the same person at various times, due to inherent qualities or accidental circumstances.

One of the first harbingers of approaching convalescence is a diminution in the rapidity of the pulse.²⁷ As in the case of the temperature the fall of the pulse is often very abrupt, so marked in some cases that a pulse of the greatest frequency may fall in a few hours to the normal. During convalescence the pulse may be slower than natural²⁸—being sometimes greatly retarded as I have witnessed in several of my cases. If the pulse should continue frequent during convalescence, suspicion should be aroused that all is not as it should be or appears.

In some cases especially, those which pursue a lingering course, the heart becomes weak and irregular in its action. An accelerated, weak, irregular and intermittent pulse often indicates inflammatory disease of the heart.²⁹ whilst a slow and irregular one may arise from cerebral complications.³⁰ Of whatever nature, an irregular pulse should always excite grave apprehensions.³¹ During convalescence the pulse may be for a time intermittent, but this, in the absence of other indications of danger, need cause no apprehension.

The pulse is usually full and strong in the case of previously healthy and robust patients, but the contrary may prevail if the subject be debilitated, or if the disease be of a low, adynamic character, in which case it may be full, but weak and easily compressible. This has been my experience, although many writers describe it as habitually soft.³²

Thus Dietl³³ says that usually the pulse is small and empty, the artery feeling under the finger as if its full capacity was not being employed. This continues without any marked variation until the end of the exudative stage, after which

it suddenly falls to the small and weak pulse of convalescence. Only in severe cases with extensive hepatization, in weak or anæmic individuals, or the malady is combined with typhus, or after a profuse perspiration does one observe a full and large pulse which completely expands the artery.³⁴

The force of the cardiac contractions depends very much upon the volume and characters of the circulating fluid. Contrary to what one might naturally expect to be the case, they are more forcible in anæmic and weakly patients than in the plethoric and strong. In such cases, also, the action of the heart is apt to be tumultuous, stormy and irregular. This need occasion but little anxiety, although such patients are often greatly frightened at the turbulence raging within.

The pulse may be diminished in power and volume in the arm of the affected side, due to compression of the arterial trunks within the chest, as appears to have occurred in a case reported by Dumeril.³⁵ The force and size of the radial pulse may also be diminished or increased on either side because of a difference in the size and elasticity of the artery at the wrist, this varying widely in different individuals.³⁶

Sphygmographic tracings show the pulse as being usually somewhat dicrotic, although less so than in typhoid fever. Compared with this it bears a higher pressure, the points of the curve are sharper and the up-stroke more nearly vertical.³⁷ In my experience very marked dicrotism has been of unfavorable import, although Juergensen³⁸ considers it of no particular pathological significance.³⁹

Various cardiac⁴⁰ and arterial murmurs⁴¹ may appear, be intensified or be lost during an attack of pneumonic fever.

In December, 1874, I attended a man, aged 65, suffering with pneumonic fever, locally affecting the entire left lung. He had been ill four days when first seen and his cough was paroxysmal and distressingly severe—each effort ending in profound exhaustion. On examination, immediately after a paroxysm of coughing, in addition to the ordinary physical signs of pneumonic consolidation, there was heard, plainest at the junction of the middle and outer thirds of the clavicle and less distinctly over the entire part of the chest, a loud and prominent soufflé. It seemed to be synchronous with, or to follow immediately upon the closure of the aortic valves, but was not especially distinct immediately over them. As the disease progressed the sound became less intense and after absorption of the pneumonic deposit it could not be heard.

This sound I have heard in other cases, but in none so plainly as in the one above detailed. It has sometimes been noticed in the right side, although never so distinctly as in the left. It is probably due to compression of the subclavian artery at the point where it lies between the clavicle and first rib in front and the condensed pulmonary tissue behind, and at a time when it is distended with blood by the forcible contractions of the heart brought about by the exertion of coughing. In one of my cases a permanent, rough, direct mitral murmur became musical during the height of disease, but lost this quality with the advent of convalescence. During the attack a murmur may occasionally be heard over the heart which disappears during resolution.⁴² For this no satisfactory explanation has yet been advanced. When pneumonic fever attacks a person who is the subject of a cardiac murmur it may be heard much less distinctly than usual or it may be entirely suspended.

Leaming⁴³ has called particular attention to this point and has detailed several illustrative cases. His theory is that the chest is an acoustic chamber and that murmurs or other sounds within it will be heard with facility or otherwise according to the conditions of the chamber. "The chest," says the author, "is a musical chamber and may be

represented by a violin. When the instrument is tuned and in order, its acoustic qualities may be considered perfect. If a watch or music-box be placed within the violin, hanging from the roof, auscultation will reveal the slightest jar or noise made by the works of the watch, or bring out with distinctness the low notes of the music-box. But if, while the ear or stethoscope is still placed upon the violin, water or sand be poured into its chamber, the sounds of the watch or box will grow feeble or disappear. The low notes of the music-box disappears entirely, as also does any jarring of the wheels of the watch. These phenomena are invariable because they are the result of acoustic law."

On the contrary I have heard the normal heart-sounds transmitted to a great distance through hepaticized lung tissue, which is a very good conductor of sound. Resonance may be diminished while conduction is increased.

In some cases of pneumonic fever, from some unknown cause, and with no other symptoms of cardiac thrombosis, the veins may pulsate. I have seen this in the veins of the neck and dorsum of the hand. They are often turbid, as were noticed long ago by Aretæus.⁴¹

In very rare cases there may be decided pulsation of the affected side of the chest. This may be due to the impulse of the heart being propagated through the hepaticized lung,⁴² to the pulsation of large pulmonary vessels,⁴³ or a combination of both. This condition must be differentiated from aneurism, pulsating carcinoma, pulsating empyema, etc. It is not certain that this peculiar condition adds to the dangers of the malady, or that it is particularly liable to be followed by abscess or purulent infiltration.⁴⁴

I have met with but a solitary case in which this singular phenomenon was present: A young farmer, aged 23, was taken March 15, 1875, with all the ordinary symptoms of pneumonic fever, locally affecting the base of the left lung. On the fourth day my attention was attracted to a vibratile pulsating tremor all over the lower part of the left side of the chest. The pulsations were synchronous with the stroke of the heart. They did not diminish in strength as the distance from the heart increased, but seemed to be of the same intensity in all parts, except that they gradually shaded off above and below; they were not expansile and they could be felt but were not visible. There was no palpitation of the heart and the patient was not anæmic. When he lay upon his left side the patient complained of a sensation of fulness, tension and weight, as if an abscess was forming in his side. This was somewhat relieved by reposing on the right side. The sensations conveyed to the observer's hand, very strongly reminded one of those felt when the hand is placed forcibly over a large incipient abscess, although the pulsations were accompanied by tremor. The pulsations ceased two days later, with the advent of convalescence, and recovery was perfect. Repeated subsequent examinations failed to disclose any pulsation in the side, cardiac disease, or any other cause to account for the phenomenon.

In pneumonic fever a portion, often large, of the lung is rendered useless for purposes of aëration of the blood. If the circulation is not quickened the sanguineous fluid is incompletely oxidized, but if it is accelerated in a degree sufficient to compensate for the loss of aërating surface and capacity, the blood becomes purified as in health. The increase of blood pressure, requisite to obtain this result ensures the dilatation of the capillaries⁴⁵ in all parts of the body and an actual increase of the total quantity of blood in the system. This accounts for the flushed face, and the full, bounding pulse of the pneumonic patient. If, on the contrary, the heart should become tired out, or, with all its efforts, be unable to drive the great volume of blood with sufficient rapidity through the active portions of the lung,⁴⁶ an opposite condition obtains; the blood, improperly aërated, remains of a dark color, and filling out the di-

lated and parietic capillaries and veins," gives us the well known cyanotic appearance of some of these cases. Such blood is no longer capable of yielding to the nerves and muscles of the body the proper amount and quality of nutritive material necessary for the proper performance of their functions. The heart⁴⁷ being the organ upon which most depends at this critical time, is the first to feel the effects of this state of affairs and it becomes weakened, parietic and no longer competent to properly fulfill its function.⁴⁸ With the heart in this condition, the venous side of the circulatory tree becomes surcharged with unpurified blood. A large proportion of this excess of venous blood is constantly in the lungs, slowly working its way through the pulmonary capillaries, delayed by a damming up in front and a lack of *vis a tergo*, thus further impeding the functions of an already lame organ. Under these circumstances the cerebro-spinal centres, starving for lack of proper nutrition and loaded with noxious effete matters, weaken and a sleepy, drowsy state ends the scene. If perchance the patient escapes with his life, the cyanosis continues until the exudation begins to be absorbed and the heart is strengthened.

Cyanosis is usually more marked in the robust and plethoric for the reason that their vessels are normally over-distended, and with the diminished breathing surface oxidation does not readily occur; and also because their tissues require more and richer blood for their nutrition and load the vital fluid with a greater amount of effete matters.

Von Fleische⁴⁹ has propounded a rather curious theory to account for the occurrence of cyanosis in connection with a weak heart. It has been shown that a liquid contained in a vacuum can only get rid of a small portion of its constituent gas by means of a concussion just before the exhausting process is begun, and this fact may be applied to the study of the relations existing between the cardiac pulsations and the respiratory changes in the lungs. Von Fleische thinks "that the blood in the pulmonary arteries containing the carbonic acid gas in solution, is jarred by the motion of the heart, and in this way assistance is given in setting free the CO_2 ." It is quite true as Von Fleische claims, that the physics of the process by which this gas passes from the blood serum to the air in the alveoli has been obscure, because there is little difference between the pressure in these spaces and in the blood. Von Fleische's theory affords a plausible explanation. If it is true, then cyanosis from weak heart is due, in a measure at least, to the feeble impact of the heart muscle.⁵⁰

There are some changes in the composition of the blood in this disease which are of much importance and which require attention in this place. It is constantly in the condition known as hyperinosis, and contains more fibrine, or fibrinic forming material, than in the normal state.⁵¹ The proportion of fibrine in the shed blood, which in health is two or three parts per 1000, increases to 4 four to 10.5 parts per 1000.⁵²

In estimating the amount of fibrine in the blood by means of the microscope Hayem⁵³ makes use of slides upon which a small disc is formed by cutting a shallow trench or groove upon its surface. The drop of blood is placed upon the disc and when pressure is applied to the cover glass the excess flows into the trench. The amount and character of the fibrine can now be readily estimated by the amount and character of the coagulation present. Evaporation is prevented by surrounding the trench by a thin layer of vaseline and sealing the cover in the usual manner.⁵⁴

Hertz⁵⁵ states that he has sometimes observed a peculiar condition of the blood, which, on standing, gave, instead of ordinary serum, a yellowish white milky fluid, consisting of an emulsion of the finest fat drops. As the cases all recovered this condition does not seem to be of great import.

Freund* has made some interesting experiments illustrating the effects of oil in hindering coagulation of the blood⁶¹ after it is withdrawn from the body. "Blood from the carotid of a dog collected under oil remained fluid at ordinary temperature for twenty-four hours; as did also blood which had been poured into a glass vessel whose walls had been smeared with vaseline. In the latter case coagulation did not ensue even if the blood was stirred with an oiled glass rod, although it took place in a few minutes if the blood was poured into an unoled vessel, or was stirred with a dry glass rod. If blood caught in this way was prevented from drying, and if contamination with dust was prevented, coagulation might be prevented for several days, during which the corpuscles sank to the bottom, leaving the clear plasma on the surface. Similar observations were made with oiled canule and tubes, in which the blood remained fluid. As a result of his experiments the author comes to the conclusion that, as on the one hand the absence of adhesion of the blood to the walls of the blood vessel prevents coagulation, so on the other, if any adhesion is allowed after the blood is drawn from the body, this acts as the starting point of the coagulation."⁶²

Various sequences may follow the hyperinotic state of the blood and its impeded circulation,⁶³ the most serious of which are vascular thrombosis and heart-clot.⁴

In the case of heart-clot it may be of very slow or very rapid formation. It may occupy any of the cavities of the heart and may project into any of the efferent great vessels. Such clots may, and generally do cause rapid and sudden death, after the most distressing and alarming symptoms; although a fatal termination may occur with no symptoms pointing in this direction.

Inasmuch as heart-clot must be comparatively rare in the experience of any one observer,⁶⁵ the diagnosis is enshrouded in considerable doubt, and it may be well to study the recorded symptoms at considerable length.

Obstruction to the circulation of the blood through the right side of the heart is indicated by symptoms which are very distressing, and which usually arise with alarming suddenness. The surface of the body is pallid; the temperature falls; the radial pulse is quickly lost; the veins are turgid; there is the most distressing dyspnoea, and there is profound collapse of all the physical powers.

The livid pallor which spreads like a dim shadow over the surface is very characteristic and bears no resemblance to the paleness of anæmia. It must be seen to be appreciated. An icy coldness begins in the extremities and gradually makes its way to the trunk, and coëtaneously the body-heat rapidly falls to a low point. The coldness is objective and is rarely complained of by the patient. The pulse is weak and ribbon-like and quickly disappears from the arteries of the extremities, and this, too, in the face of a forcible and bounding action of the heart. This lack of arterial tension together with cardiac over-exertion is very characteristic. Venous fullness is a marked feature, especially in the neck, and when a vein is compressed it does not become more distended on the distal, and relaxed on the proximal sides, but remains as before.

The respirations are rapid, heaving and sighing, but although the air freely enters the unconsolidated portion of the lung,⁶⁶ yet the horrible dyspnoea is not relieved. The distress is always referred to the region of the heart.⁶⁷ The rapid collapse of the physical powers, and finally of the mental faculties are marked phenomena.⁶⁸ "The muscular prostration is marked by restless tossing and failure without convulsion. After a time the muscles themselves

collapse, the abdominal muscles are drawn in deeply with each respiration, and the power of voluntary muscles to perform any resolute act subsides. The mental prostration is equally marked. There is no apparent desire to effect anything except to breathe. The mind does not wander, neither does it sleep. A patient who recovered told me she knew everything that was going on all the time, but in such a listless way that she had no real interest in the anxious plans which we were carrying out to save her life. To the end of life there is no active convulsion; the mind loses its consciousness before the respiration ceases, and death, when it comes, is usually by a kind of coma, with asthenia or syncope."⁶⁹ Death is due, not so much to the accumulation in the system of carbonic acid as the lack of oxygen.⁷⁰

When the obstruction is in the left side of the heart the symptoms will be quite different from those above detailed. The surface of the body will have a leaden hue and will be cold. The dyspnoea will be suffocative and convulsions and coma precede the fatal termination. The action of the heart will be very violent, tumultuous and irregular.

In case the coagulum does not pass through or adhere to any of the cardiac valves the physical signs will be equivocal, but if it does so the corresponding sound will be muffled or lost.⁷¹ In the lungs a loud, dry and harsh respiratory murmur may be heard, together with the signs of emphysema.⁷² Often no symptom pointing toward coagulation within the heart are present and the condition is only discovered by post-mortem examination.

They occur with considerable frequency, and may be present in such a large proportion of cases as to constitute a peculiarity of the epidemic.⁷³ It is not always clear as to where the clot first begins to form, but prolongations always extend in the direction of the sanguineous current and never in the opposite direction.⁷⁴

Richardson⁷⁵ found the clot located in the right cavities of the heart in 80 per cent. of the cases, and in the left cavities in 6 per cent. In 3 per cent. there was hysterical simulation, and in 11 per cent. there was coagulation in the large veins.

The period at which heart clot forms is variable, but is generally late in the attack and not infrequently during convalescence. It is probable that it is oftener met with in cases in which organic disease of the heart is also present.⁷⁷

A sailor, aged 56, was taken, after a two weeks' spree, with pneumonic fever, locally affecting both lungs. Death was preceded for twenty-four hours by active delirium. At the autopsy there was found a large ante-mortem clot in the right ventricle, auricle and pulmonary vessels. Both lungs were adherent. The left lung was solid posteriorly and the tissue cut like liver-tissue, swelling as cut. There was hepatization of the right lung posteriorly.⁷⁸

Sometimes the clot is on both sides of the heart:—

A man, aged 58, died from pneumonic fever. At the autopsy there was found "extensive fibrinous clots in both ventricles, which were attached to the internal walls of the heart, and projected into both aorta and the pulmonary arteries, preventing the proper closing of their valves, which, added to the insufficiency of the mitral and aortic valves, was sufficient to account for death."⁷⁹

Occasionally the clot is located in the pulmonary arteries, whilst the cardiac cavities remain free.

A young woman, aged 19, on the second day of an attack of rheumatism, had a fit of alarming dyspnoea, with catching, shallow respiration and pain in the left side. Repeated auscultation failed to detect any alteration in the heart or respiratory sounds, although the dyspnoea rendered the

examination unsatisfactory. After remaining in great distress for two days she died, free from mental symptoms. At the autopsy the pulmonary artery, as far as its third and fourth divisions, was found to be filled with decolorized coagulum, and there was a shred of lymph in the right middle cerebral artery. The lower lobe of the left lung was hepatized. The heart was uniformly covered with recent lymph.⁸⁰

A patient, convalescent from pneumonic fever, suddenly cried out, complaining of dyspnoea and great pain in the chest, became rapidly cyanosed and died in two and one-half hours. Post-mortem examination revealed a clot in the pulmonary artery.⁸¹

It is possible that a fibrinous coagulum in the heart might soften and break down into such minute particles that they could enter the circulation, pass through the pulmonary sieve and be absorbed and extruded, with complete recovery of the patient. Or the softening and disintegration of the mass might proceed, with lodgement of some of the fragments in the pulmonic, hepatic, cerebral or other capillary systems, with the formation of abscesses. Or, again, the clot might become firmly attached and organized, and remain *in situ*, the patient maintaining a precarious existence for a longer or shorter period, but constantly liable to sudden death. These are certainly possibilities, but they are of the remotest character. It is true that cases are on record in which recovery has followed the condition,⁸² yet in my experience the diagnosis of forming heart clot has always been followed by speedy death.

It is not always a lack of power in the heart to forcibly propel the blood that is the cause of formation of the clot. Musser⁸³ reports a case in which the right heart was distended by an immense ante-mortem coagulum, although the heart was greatly hypertrophied.

Dalmus,⁸⁴ from the study of a very interesting case concludes that the compression exerted by the hepatized lung and, possibly, pleuritic and pericardial effusion, upon the heart may so impede the flow of blood as to cause its clotting in the heart.

The increased tendency toward coagulation of the blood may lead to the formation of vascular thrombosis and their consequences—œdema, gangrene, embolism,⁸⁵ etc.

Cases of phlegmasia dolens have been reported by a number of writers⁸⁶ and I have myself met with one example.

A colored woman, aged 32, had been ailing, indefinitely, for several months, when she was suddenly seized with a severe rigor, followed by fever, cough, thoracic pain, and all the ordinary symptoms of pneumonic fever, locally affecting the entire left lung. The disease pursued a severe course, with endocarditis as a complication, but convalescence seemed ready to be declared, when, on the ninth day, a thrombus developed in the right iliac and femoral veins, with consequent great swelling of the corresponding limb. Pain in the limb was very severe for a week and the swelling began to subside at the end of a fortnight and disappeared within a month. The action of the heart continued good and the lung cleared up nicely, yet her appetite and strength failed, she lost all hope and desire of living, became greatly emaciated and prostrated, fell into a drowsy state and died, comatose, three months after the onset of the attack.

Detachment of portions of the clot, either in the heart or the veins may cause embolism of the cerebral arteries.⁸⁷

A female with pneumonic consolidation of the right lung suffered from hemiplegia on the fourth day. The paralysis was limited to motion, with some impairment of the mental faculties. Five months later the only remains of the affection was a slight drawing of the mouth. A systolic murmur of doubtful site was developed in the course of the fever.⁸⁸

"An elderly lady had suffered for some time from chronic

bronchitis, accompanied with great debility. Suddenly pain seized her in the left side, and coincidentally the temperature rose about two degrees and a half. On examination pneumonia of a limited portion of the left lung was noticed. Three days after a mitral systolic murmur became clearly audible. Shortly after this she was taken with dizziness, fixed eyes, and all the symptoms of an apoplectic seizure. The mouth was drawn to the right and there was paralysis of the left side of the body, with muffled and indistinct speech. At the time of the fit the apex murmur had become very loud. The patient speedily rallied from the stroke, the left leg quickly regained its motor power, the left arm remaining helpless somewhat longer. She was improving satisfactorily, when suddenly the breathing became rapid, and the systolic murmur, which had become all but inaudible, again became very loud. From this time, which was about six weeks after the convalescence commenced, she slowly sank, although she rallied occasionally for a short time. * * A few days before death she suddenly became speechless, and lost all power over the tongue; there was no loss of sensation or motion in any part of the body. The murmur at the apex continued very loud quite up to the last."⁸⁹

Paraplegia possibly due to the same cause, has been early noticed.⁹⁰

If the blood of a pneumonic patient is allowed to flow into a receptacle it will retain its heat longer than natural, coagulate slowly⁹¹ and the clot will be smaller and firmer and retain its consistence longer than usual. It will be covered with a buffy coat and the serum will have a pure lemon color.⁹² It preserves its specific odorous exhalation. The proportion of white corpuscles is increased.⁹³ In severe or fatal cases there is a tendency toward crystallization of the hæmoglobin, after it has been on the slide for several hours.⁹⁴ Urobiline⁹⁵ is present in many cases.⁹⁶ The sulphate⁹⁷ and tartrate⁹⁸ of soda is increased, with a diminution of the phosphates and chlorides. The blood may present a milky appearance from the presence of fat globules. The proportion of red corpuscles⁹⁹ is diminished¹⁰⁰ and hydremia may be present.¹⁰¹ Purulent infection of the blood may occur in rare instances.

According to Jaecoud the evolution of such a case is as follows: "An individual in perfect health, attacked with acute pneumonia, the malady presents the characters and the course of marked simple pneumonia, nothing present to foresee the terrible incidents of which it may be the starting point. In ordinary cases, the acute phasis reaches its term, the fever ends, but the febrile defervescence is not followed by complete local repair, the remains, more or less extensive, of the pneumonic focus persists without any alteration. After an indefinite period, during which the malady is stationary, the situation of the patient is aggravated, and he succumbs after having presented irrefutable signs of a state of infection. At the autopsy, one notices spots of suppuration in the pneumonic remains, and diffuse purulent foci, either in the limbs, or in the viscera. The patient having been seized with pneumonia in perfect health, the pneumonic remains having been during several days the only lesion present, it is certain, taking the incidents chronologically, that the suppuration of the lung is the starting point of the purulent foci, and of the general infection of the organism. Moreover, if these foci be submitted to microbial investigation, one can seize and place in evidence the intermediate agents between the primary and the secondary lesions, for the same microorganisms which are discovered in the suppurating spots of the lung, are found in the blood and all the foci without exception."

The heart is usually somewhat increased in volume¹⁰² generally by dilatation.¹⁰³ The augmentation of size may remain stationary or it may oscillate between wide extremes. Its muscular tissue is weakened, softened¹⁰⁴ and, in some cases, affected with fatty degeneration.¹⁰⁵ Under such circumstances rupture or paralysis¹⁰⁶ of the heart is a not very remote possibility.

In one case, in which the entire left lung was hepatized, with rheumatism of the left knee as a complication, rupture of the heart, with rapid death, occurred on the tenth day.¹⁰⁹

Such unfortunate contingencies are more apt to prevail in persons who are the subjects of present or former inflammatory affections of the heart.

A sailor aged 23, under treatment for secondary syphilis, was discharged improved, to be again admitted for "chronic bronchitis" three weeks later. He had a troublesome cough, and complained of abdominal pain, became gradually weaker, and after five days awoke at 3 p.m., with an intense pain in the region of the heart, became convulsed and died comatose in forty minutes. At the autopsy the lower lobe of the left lung was found hepatized and the heart covered with plastic exudation.¹¹⁰

Aneurism of the aorta may be developed¹¹¹ or ruptured¹¹² during an attack of pneumonic fever, and the inquiry seems pertinent, whether this might not be due to the strain of coughing.

Hæmorrhages from various parts of the body, *e.g.*, stomach,¹¹³ intestines,¹¹⁴ kidneys,¹¹⁵ uterus,¹¹⁶ hæmorrhoids,¹¹⁷ lungs,¹¹⁸ nose, etc., may occur and sometimes from peculiarities of the epidermic influences, such hæmorrhages are the rule.¹¹⁹

Epistaxis is a very common symptom and in my experience it has been met with as frequently in pneumonic as in typhoid fever. In general it is of only moderate severity, but in some cases it may be so profuse as to endanger, or even destroy life.¹²⁰

A man, aged 30, was taken with pneumonic fever in May, 1879. During the first and second days there were frequent slight hæmorrhages from the nose. During the night of the third day he bled from the nose to an enormous—almost incredible—extent, which left him in such a low and feeble state that he died during the following day.

Epistaxis occurs as a premonitory symptom,¹²¹ or at any time during the attack, but most often in the earlier days.¹²² I have only seldom met with it during the decline of the disease.

In viewing epistaxis as a symptom of this disease, certain facts regarding nasal hæmorrhages should be borne in mind, otherwise false views and inferences might be drawn from this phenomenon. Thus different ages are variously predisposed to such bleedings; they being much more common in childhood and youth than in after years.

Epistaxis is considered critical¹²³ and of benefit by a number of writers, and I have often seen headache, restlessness, anxiety and delirium greatly benefited or entirely relieved by free nasal bleeding.¹²⁴

In some lingering cases of pneumonic fever occurring in the aged, the weak and the debilitated, hypostatic congestion of the lungs ensues, especially if the patient lies for a long time in one position.

It is always the most dependent portion of the lungs which are affected, and the causes seem to be those above indicated, together with a weak inspiration and feeble circulation, the efforts of the heart being unable to overcome the force of gravity, thus allowing the access of passive congestion, blood stasis and œdema, whilst the weak respiration allows collapse of lobules within the affected area. Under these circumstances an exudation of liquor sanguinis, blood-corpuscles, etc., follows as a necessary consequence.

When this unfortunate condition arises the symptoms take on an alarming character, especially if the extent of the congestion is very great, as it may be.¹²⁵ Of these the most marked is increasing and profound prostration. The pulse becomes weak and very rapid; the veins are distended and cyanosis is marked; œdema of the feet and back may be noticed; respiration is frequent and superficial, and muscular prostration is extreme.

Piory² has called attention to the important fact that these patients almost invariably keep the mouth widely open when asleep. This is in consonance with my own expe-

rience, and I have seldom failed to find evidences of hypostatic congestion when this symptom has appeared. In these one finds, in the morning after sleep, the mouth tongue and lips dry and covered with sordes. The dryness also extends deep down into the throat and, until after the parts have become moistened, speech is difficult.

Pericarditis is a not infrequent complication of pneumonic fever¹²⁷ and is found post-mortem in a larger proportion of cases than their clinical histories would lead us to expect.

Of 265 cases of pneumonic fever collected by Ormerod,¹²⁸ 33, or 12.4 per cent, were complicated by pericarditis. Of the 133 cases analyzed by Flint¹²⁹ it was present in 8, or 6 per cent. It occurred in 80, or 1 per cent, of 8000 consecutive cases observed in the Vienna General Hospital.¹³⁰ Huss¹³¹ found it in 22 of 2710 cases. Juergensen¹³² in 9 of 230 cases, Doubleday¹³³ in 6 of 252 cases, Caton¹³⁴ in 2 of 85 cases and Satterwaite¹³⁵ in 10 per cent. of his cases. It was known to be present in 12 of my 498 cases.¹³⁶

During some epidemics of pneumonic fever a very large proportion of cases are complicated by pericarditis.¹³⁷ It may occur in patients of any age, but it is most frequent in children¹³⁸ and young adults. It may appear at any stage of the attack, but in quite a large proportion of cases it makes its appearance early, simultaneously or even in advance of the pulmonary affection, although it usually comes on at a later period. In some cases it seems that the pericarditis is due to an extension of inflammation, although an attentive study of the subject leads me to believe that the pulmonary, pleural and pericardial inflammation are due, in the vast majority of instances to a common cause.¹³⁹

Rheumatism sometimes precedes pneumonic fever, and may exercise a certain influence in locating inflammation in the pericardial sac.¹⁴⁰ In non-rheumatic cases endocarditis is rare, and the patient need have no fear of grave valvular lesions, with their sequelæ.

Pericarditis may complicate pneumonic fever affecting either lung, but more often when it is left-sided.¹⁴¹ Often the inflammation is most marked on the external surface—essentially a pleurisy—and the effusion escapes into the pleural cavity.¹⁴² Adhesions between the pericardium and pleura are of frequent occurrence.¹⁴³ There is usually but a very moderate amount of intra-pericardial inflammation and effusion, although cases of very extensive effusion are not rare.¹⁴⁴

A stonemason, aged 25, was taken, February 21, 1862, with a sharp throbbing pain in the left side, which was aggravated by deep breathing, moving or lying on either side. In the evening he had distinct rigors and shivering, with nausea, great thirst, anorexia and other febrile symptoms. His countenance became pale and anxious, the skin hot and perspiring, respiration frequent and diaphragmatic, pulse 140, sleepless and restless, tongue dry and brown, and he expectorated rusty sputa. The lower portion of the left side of the chest was dull on percussion, the sounds audible only here and there, tubular, and a total absence of the vocal fremitus. The impulse of the heart was diminished and its sounds almost inaudible. The urine was acid, and contained nearly the normal amount of chlorides, although they subsequently diminished in quantity. From day to day the symptoms varied, the left intercostal space began to bulge, dullness ascended, and he was tapped to the amount of two pints of thin pus on the 8th of March, and to about the same amount on the 1st of April. He died eight days later. At the autopsy the pericardium was found enormously distended with pus—"so much so that on puncture the pus spurted up to the ceiling of the room"—the quantity being about fifty ounces. The valves and muscles of the heart were unaffected. The left pleura was thickened and the sac filled with pus.¹⁴⁵

The effusion may be either serous¹⁴⁶ or purulent,¹⁴⁷

and is quickly removed by absorption or remains, to a greater or less extent, more or less permanently. This latter contingency does not depend so much upon persistency of the inflammatory action as upon the presence of extensive, thick and non-vascular false membrane or occlusion of lymph channels, which embarrass or prevent absorption. On this ground can be explained many cases of long delayed absorption of inflammatory effusions into serous cavities: the fluid remaining quiescent or diminishing very slowly until the false membranes are more or less absorbed and become vascular.

A man, aged 20, was taken with rheumatic fever, chiefly affecting the left knee, on January 22, 1851. On the sixth day pneumonic fever appeared as a complication, various parts of both lungs being inflamed. On the sixth day the pulse suddenly dropped from 108 to 90, and became intermittent. On the ninth day the respirations were very frequent, and inspiration was accompanied by a peculiar catching movement of the diaphragm, as in hiccough. The expression was one of restraint, similar to the sardonic grin. The urine became albuminous and the respirations rose to 70 per minute. On the seventeenth day the left side of the chest became suddenly tympanitic, with succussion sounds, bubbling and metallic tinkling. The heart was not displaced. At this time also occurred profuse purulent expectoration, with drenching perspiration, rapid pulse and great dyspnoea. Death occurred on the twenty-second day, and at the autopsy the pericardium was found greatly distended with fourteen ounces of bloody serum; the heart covered with a thick and shaggy coating of lymph and adherent at the apex to the parietal layer of the pericardium.¹⁴⁸

The intra- and extra-pericardial effusion are usually of the same character, although one may be serous whilst the other is purulent.¹⁴⁹ The deposit of lymph may be of great thickness.¹⁵⁰

A young man, aged 19, fell into the water, in July, 1863, and was promptly attacked by pneumonic fever. On the left side, and subsequently on the right side also, there was heard bronchophony and a friction sound. There was great distress, embarrassed respiration and attacks of syncope. The pulse was small, feeble and irregular. The area of cardiac dullness was increased and the sounds were scarcely audible. During the last few days of life the chest became very prominent. He died on the eleventh day. At the autopsy the lower lobes of both lungs were found hepatized. The pericardium was distended with about twenty-two ounces of pus. Anteriorly and above the sac was softened. The heart was covered, to the extent of nearly an inch in thickness, with firm lymph. The valves and muscular structure were healthy. The pleuræ over the affected portions of lung were thickly coated with lymph.¹⁵¹

When both lower lobes are consolidated the pericardial bulging sometimes takes the most curious directions.¹⁵²

Pericarditis occurring as a complication of pneumonic fever invests the case with great danger.¹⁵³ Not only is one grave diseased condition engrafted upon another, but it is an affection of the one organ of the body which, above all others, is most needed in its integrity. Even if the patient is so fortunate as to recover, he does so only after a prolonged convalescence and by escaping a most pronounced peril.

Although when pericarditis appears upon the pneumonic stage the case is at once endowed with the most dramatic interest, yet its presence, from the vagueness of its signs and symptoms, is not only often unsuspected at first, but in many cases it remains absolutely undiscovered—perhaps undiscoverable.

Among the symptoms pointing to the presence of pericarditis may be mentioned precordial pain and distress, abnormal action of the heart, and certain plessimetric and stethoscopic signs. The pain is sometimes entirely absent,

but at other times it is simply unbearable, and between these extremes there is every possible grade. The heart's action is almost always disordered. On inspection there is often seen, and it may also be felt, an undulating and wavy motion over the region of the heart,¹⁵⁴ or the action may be pounding, tumultuous or irregular, and either stronger¹⁵⁵ or weaker than natural. The pulse is small, weak and irregular, although it may occasionally be full, forcible, trembling or cantering.¹⁵⁶ Friction sounds are often heard. They are usually synchronous with the action of the heart, but in rare cases they may be coincident with the respiratory movements.¹⁵⁷ The friction sound is often rendered stronger and clearer, or is developed by pressure of the stethoscope.¹⁵⁸ The cardiac sounds seem distant and muffled if effusion is present.¹⁵⁹

Although pneumonic fever and ulcerative endocarditis are often associated together, yet it is rather strange that ordinary endocarditis is met with as a complication of the first named disease so rarely that the subject is scarcely mentioned in the books.

Thus Huss¹⁶⁰ found endocarditis a complication in only four of 2710 cases analyzed by him. Hermann¹⁶¹ once in forty-four cases, Waller¹⁶² once in eighty-one cases and Stortz¹⁶³ in two of 286 cases analyzed by him. It was detected only twice in my series of cases. Single cases, however, have been reported by a number of observers.¹⁶⁴

Endocarditis as a complication is most apt to appear during the second stage¹⁶⁵ and is very dangerous.¹⁶⁶ The inflammation may be of limited extent or it may involve the whole surface of the membrane, and the action may penetrate so deeply as to cause abscess¹⁶⁶ and ulceration.¹⁶⁷

A man, aged 40, died from pneumonic fever, and at the autopsy "the heart was found firmly contracted, and on the middle anterior surface of the right ventricle was an opaque pearl-colored plaque, the seat of a circumscribed inflammation."¹⁶⁸

A man died on the sixth day of an attack of pneumonic fever, locally affecting the right side. At the autopsy the entire right lung was found consolidated. The edges of the mitral and aortic valves were thickened and each aortic cusp was perforated by a large rough-edged ulcer.¹⁶⁹

A male, aged 17, had an attack of pneumonic fever, from which he was fairly convalescent, when symptoms of cardiac disorder led to an examination of the heart. The apex beat was found below and to the left of the nipple, with bulging of the precordial space and an enlarged area of impulse. There was a to-and-fro murmur at the base, over the aortic valves, and a systolic murmur at the apex. In addition there was detected a faint pre-systolic murmur over the area of the mitral obstructive murmur. The case progressed rapidly, dyspnoea and weakness increased, and a fatal termination ensued twelve days after the first examination. At the autopsy the heart was found to be greatly enlarged, particularly the left ventricle, which was dilated to twice its normal size. The left auricle was also greatly dilated and its walls thickened. The endocardium was thickened and opaque, as were also the aortic cusps. From all the cusps sprang large masses of vegetations, and a mass of these was developed upon the wall of the ventricle a quarter of an inch below the aortic valves. The mitral valves were contracted in a funnel-shape by thickening and adhesions of the vela. The chordæ tendinæ were thickened and shortened. The papillary muscles were lengthened. The right side of the heart was not materially altered and the pneumonic inflammation was resolved.¹⁷⁰

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- 4 See also Cleghorn, Dis. Minorica, 1761;—Cullen, Prac. Phys., Phila., 1792, Vol. I, p. 178;—Drake, On Fevers, Phila., 1844;—Grissolle, Traité de la Pneumonie;—Jürgensen, Ziemssen's Handb., 3d. v. s. 78;—O'Connell, De Morb. Acut., p. 235;—Raven, Lond. Prac., Vol. xxxi, p. 31;—Et al. In such cases investigation may reveal the fact that the patient has, normally, a slow pulse. See the cases recorded by Smith, N. Y. Med. Rec., Dec. 31, 1887, p. 814. Squire, Ibid., Nov. 26, 1887, p. 678;—Thompson, Am. Prac., Jan. 1876, p. 6, et al.
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22 See also Lance, *Gaz. des Hôp.*, 1886, No. 147.
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24 For many years past I have gained great advantage in accuracy in counting very rapid pulses by noting every second beat and multiplying the result by two. See also Hoadley, *Jour. Amer. Med. Assn.*, Feb. 14, 1889, p. 185.
25 See also Fox, Reynolds's Syst. Med., Vol. ii, p. 171.—Ziemssen, *Pleuritis und Pneumonie*, s. 217, and others. Koettwitz, *Inaug. Dissert.*, Halle, 1882, s. 27, says that in children the pulse may remain frequent—140 to 160,—for some time after the crisis.
26 In one case, at the acme of the fever, and with great dyspnea, burning skin, etc., the pulse was only 48 per minute. *Gaz. Méd.*, 1830, p. 61.—See also Cleghorn, *Dis. Minorica*, p. 261.—Dietl, *Op. cit.*, s. 36.—Walshe, *Dis. Lungs*, p. 289; et al.
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31 See also Juergensen, *Op. cit.*, s. 72.—Nothnagel, *Arch. f. k. Med.*, Bd. xvii, s. 201; et al.
32 This occurs in pneumonic fever oftener than in any other disease. See Riegel, *Centralb. f. d. med. Wissenschaften*, 1890, No. 34.
33 See also Todd, *Med. Times and Gaz.*, Dec. 18, 1852, p. 611.
34 See also Smith, *Med. Times and Gaz.*, Apr. 26, 1875.
35 Andral, *Med. Clin.*, Vol. ii, p. 137, in commenting upon one of his fatal cases called attention to the presence of a very irregular pulse which, erroneously I think, he considered of no particular importance. See also Robb, *Jour. Am. Med. Assn.*, Nov. 28, 1885, p. 614.—Bowie, *London Lancet*, 1889, Vol. i, p. 422.—Satterthwaite, *Phila. Med. News*, Jan. 5, 1889, p. 6.
36 See Dutcher, *Cincinnati Lan. and Observ.*, Jan. 1861, p. 10; et al.
37 *Op. cit.*, s. 44.
38 See also Kauffman u. De Bary, *Berliner klin. Wochenschr.*, 1888, Nr. 28, s. 557.—Pangler, *Inaug. Dissert.*, Zürich, 1887, s. 26.—Basch, *Berliner klin. Wochenschr.*, 1887, Nr. 11, u. folg.
39 *Arch. Gén. de Méd.*, T. xiii, p. 78.
40 See also Guttmann, *Phys. Diag.*, N. Y., 1880, p. 183.
41 For further information see Fox, *Op. cit.*, p. 75.—Galabin, *Guy's Hosp. Rpts.*, Vol. xix, p. 79.—Holt, *The Sphygmograph*, Phila., 1874.—Jacoud, *Clin. Méd.*, T. 1.—Juergensen, *Op. cit.*, s. 75.—Keyt, *Cincinnati Clin. Aug. and Sept.*, 1877, p. 87 and p. 99.—Lépine, *Pneumonie*, Wein, 1883, s. 90.—Marey, *Comp. Rend. Acad. Méd.*, 1872.—Rosenstein, *Berliner klinische Wochenschr.*, 1877, and others.
42 *Op. cit.*, s. 89.
43 Dietl, *Op. cit.*, s. 45, believed the best pulse for a patient with pneumonic fever to be one which remains small and empty throughout the entire exudative stage.
44 See also Carroll, *Cincinnati Lan. and Observ.*, Aug., 1863, p. 473.—Flint, *Jour. Am. Med. Assn.*, July 19, 1884, p. 87.—Prince, N. Y. Med. Rec., Apr. 29, 1889, p. 425.
45 See also Fisk, N. Y. Med. Rec., Dec. 24, 1887, p. 794;—Seeley, *Ibid.*, Nov. 5, 1887, p. 595;—Richardson, *Asclepiad*, Vol. vi, No. 28, 1889;—Tordien, *Jour. de Méd.*, No. 18, 1889.
46 See Fox, Reynolds's Syst. Med., Phila., 1880, Vol. ii, p. 175;—Graves, *Clin. Med.*, Dublin, 1828.
47 Trans. N. Y. Acad. Med., 1875.
48 *Op. cit.*, Lib. 11, cap. 1.
49 See Lacnec, *Traité de l'Auscult. Méd.*, Paris, 1819.
50 See also Graves, *Clin. Med.*, Dublin, 1828.
51 For further information consult Homel, *Pneumonia*, Leipzig, 1841, s. 121.—Fox, *Op. cit.*, p. 129.—*Jour. Am. Med. Assn.*, Vol. iii, p. 207.—Walshe, *Dis. Lungs*, Phila., 1860, p. 38.
52 In one of my cases there was distinctly noticeable a pulsation of the capillaries under the finger nails, the white lunula becoming smaller with every systole of the heart. The phenomenon was best seen when the hand was raised. See also Quicke, *Berliner k. Wochenschr.*, 1868, Nr. 34.
53 The blood pressure is not very greatly influenced by the temperature. See Wiegandt, *Centralb. f. d. med. Wissenschaften*, Jan. 27, 1886.
54 See Arctans, *De Caus. et Sig. Acute Morb.*, Lib. 11, c. i.
55 In children the left ventricle is relatively more powerful than in adults and they are therefore less liable to heart failure. See Baginsky, *Pneumonie und Pleuritis*, s. 42.—Holt, N. Y. Med. Rec., Feb. 14, 1885, p. 177.
56 See also Bardenheuer, *Berliner k. Wochenschr.*, 1875.—Thorowgood, *London Lancet*, 1887, Vol. xi, p. 1169. Homburg, *Inaug. Dissert.*, Straub, 1879, s. 95, and Münzinger, *Deutsche Arch. f. k. Med.*, Bd. xix, doubt whether this is due to degeneration of the cardiac muscular fibre.
57 N. Y. Med. Rec., June 11, 1887, p. 639.
58 This theory, followed out to its logical conclusions, would suggest gentle percussion of the præcordia as a rational therapeutic measure.
59 See also Andral, *Essai Hém. Path.*, p. 87;—Hayem, *Rev. Méd. Franc.* et *Etrang.*, Nov. 1, 1884;—Osler, N. Y. Med. Rec., Apr. 10, 1886;—Zimmermann, *Analyse des Blutes*, s. 370;—Et al.
60 Of ninety cases examined by Andral (*Op. cit.*, p. 87), in seven cases the fibrine bore the proportion of 4 to 5 per 1000 parts; in seventeen cases it was 5 to 6 per 1000; in nineteen it was 6 to 7 per 1000; in fifteen it was 7 to 8 per 1000; in seventeen it was 8 to 9 per 1000; in nine it was from 9 to 10 per 1000, and in six it was over 10 per 1000 parts. Zimmermann (*Präger Vierteljahrsschr.*, 1855) found the blood normal in eight cases of commencing pneumonic fever. After hepatization was once established the proportion of fibrine was always increased. For further information consult Andral et Gavarret, *Rech. sur la Compos. du Sang*, Paris, 1842;—Fox, Reynolds's Syst. Med., Phila., 1880, Vol. ii, p. 197;—La Roche, *Pneumonia*, Phila., 1854, p. 362;—Loomis, *Pepper's Syst. Med.*, Phila., 1885, Vol. iii, p. 313;—Simon, *Chemistry of Man*;—Et al.
61 *Op. cit.* and *London Lancet*, June 19, 1880.
62 For a consideration of the influence of the blood-plaques upon the formation of fibrine and the coagulation of the blood see Afanarsiew, *Deutsche Arch. f. k. Med.*, Bd. xxxv;—Donne, *Comp. Rend. de l'Acad. des Sci.*, 1842;—Elberth and Schimelbusch, *Virchow's Arch.*, Bd. ciii;—Hayem, *Arch. de Phys.*, 1878–79;—Kemp, *Studies*, 1886;—Norris, *Phys. and Path.*, London, 1882;—Ranvier, *Gaz. Méd.*, 1873;—Schultz, *Arch. f. Mik. Anat.*, Bd. 1;—Zimmermann, *Virchow's Arch.*, Bd. xviii;—Bizzozzeri, *Ibid.*, Bd. xc.—Osler, *Proc. Ky. Soc.*, 1874, and N. Y. Med. Rec., Apr. 3, 1886, and others.
63 *Deutsche Med. Wochenschr.*, 1881, Nr. 27.
64 *Med. Jahrb.*, 1886, Heft 1, s. 46.
65 Woodbridge, *London Lancet*, 1887, Vol. ii, p. 1319, found that the stroma of the red blood corpuscles have a remarkable influence upon the coagulation of the blood, and thinks this probably due to the presence of lecithin.
66 See *Jour. Am. Med. Assn.*, Aug. 14, 1886, p. 279.
67 See Paget, *Holmes' Syst. Surg.*, Phila., 1882, Vol. i, p. 403.
68 Fenwick, *Lancet*, 1891, Vol. i, p. 248, met with clot three times in 502 cases.
69 Cases are reported by Baker, *Pneumonia*, Lansing, 1888, p. 306;—Baron, *Arch. Gén. de Méd.*, 1838, T. ii, p. 17;—Boulland, *Mal. du Cœur*, T. ii, p. 716;—Carswell, *Illust. Forms of Dis.*, art. "Mortification,"—Carroll, *Cincinnati Lan. and Obsv.*, Aug., 1862, p. 475.—Doubleday, N. Y. Med. Rec., Mar. 28, 1885, p. 343;—Fox, *Op. cit.*, p. 199;—Hasse, *Path. Anat.*, s. 214;—Huss, *Lungenentzündung*, Leipzig, 1861, s. 132;—Obrien, *London Lancet*, 1889, Vol. ii, p. 851.—Paget, *Med. Chir. Trans.*, Vol. xxvii.—U. S. Marine Hosp. Rpts., Various years.—Virchow, *Gesam. Abhandl.*, s. 222.—Cruvelhier, *Path. Anat.*, Liv. xxxii, p. 2.—Malherbe, *Jour. de Méd. de Nantes*, 1843, and many others.
70 See also Fitz, *Op. cit.*, p. 103.
71 See Richardson, *Op. cit.*, p. 659.
72 See Gerhardt, *Volkmann's k. Vorträge*, Nr. 91, s. 726.
73 Richardson, *Op. cit.*, p. 659.
74 Plenger, *Wagner's Gen. Path.*, p. 563.
75 See Guiteras, N. Y. Med. Rec., June 11, 1887, p. 665.
76 Betz, *Memorabilien*, Apr. 30, 1877.
77 See Homel, *Pneumonia*, s. 245;—Loomis, *Op. cit.*, p. 313;—Maulius, *London Lancet*, N. Y., 1883, Vol. i, p. 479.—Ozanam, *Mal. Epid.*, Paris, 1817–23, T. iv;—Sturges, *Pneumonia*, p. 6;—Et al.
78 Fitz, *Boston Med. and Surg. Jour.*, Jan. 25, 1877, p. 103, has made an observation seemingly at variance with this assertion.
79 See *Jour. Am. Med. Assn.*, Dec. 11, 1886, p. 659.
80 See case in U. S. Marine Hospital Rpts., 1883, p. 230.
81 U. S. Marine Hosp. Rpts., 1883, p. 180.
82 U. S. Marine Hosp. Rpts., 1886, p. 224.
83 Sturges, *Pneumonia*, London, 1876, p. 70.
84 Doubleday, N. Y. Med. Rec., March 28, 1885, p. 343.
85 See Barnes, *London Lancet*, 1884, Vol. i, p. 164;—Broadbent, *Ibid.*, p. 164;—Clarke, *Ibid.*, Vol. ii, p. 263;—Playfair, *Ibid.*, Vol. i, p. 164;—Richardson, *Jour. Am. Med. Assn.*, Dec. 11, 1886, p. 659;—Wiltshire, *London Lancet*, 1884, Vol. i, p. 164.
86 N. Y. Med. Jour., Jan. 26, 1884, p. 108.
87 *Jour. de l'Experience*, T. i, p. 493.
88 Thompson, *Jour. Am. Med. Assn.*, July 24, 1886, p. 92.
89 Dietz, N. Y. Med. Rec., Mar. 17, 1883, p. 290.—Dumontpallier, *London Lancet*, Feb. 5, 1859, p. 135;—Hosmer, *Boston Med. and Surg. Jour.*, Nov. 20, 1879, p. 726;—Moore, *London Lancet*, 1884, Vol. i, p. 1026;—Et al.
90 A number of references on this point have been misplaced.
91 *Lanc. La France*, *Med.*, April 23, 1884.
92 Clarke, *London Lancet*, 1884, Vol. ii, p. 263.
93 See Juxham, *On Fever*, p. 183.
94 If many bleedings are made the blood last drawn will coagulate more rapidly than that first shed. See Meigs, N. W. Med. Jour., 1849, p. 133.
95 In one of the cases reported by Andral, *Med. Clin.*, p. 140, the shed blood, after standing awhile, became covered with a thin greenish coating.
96 See Escherich, *Berliner k. Wochenschr.*, 1884, Nr. 10, s. 146;—Lépine, *Op. cit.*, s. 158;—Rokitansky, *Path. Anat.*, Phila., 1853;—Et al.
97 See Bond, *London Lancet*, 1887, Vol. ii, p. 511.—Lichtenstern, *Ueber den Hämoglobinhalt des Blutes*, Leipzig.—Ziemssen, *Jour. Am. Med. Assn.*, July 9, 1887, p. 39;—Et al.
98 Probably a product of bilirubin and biliverdin.
99 See Hayem, *Med. Presse*, Aug. 17, 1887.
100 Jarisch, *Schmidt's Med. Jahrb.*, 1877, s. 60.
101 Poulet, *Arch. de Physiol.*, 1888.
102 See Lépine, *Op. cit.*, s. 63.
103 Osler, N. Y. Med. Rec., April 10, 1886, p. 407, has seen red blood corpuscles within other corpuscles.
104 See Huss, *Lungenentzündung*, Leipzig, 1861.
105 See Ziemssen, *Op. cit.*
106 *Jour. American Med. Assoc.*, Sept. 11, 1886, p. 307.
107 Giovanni, N. Y. Med. Rec., March 29, 1884, p. 349;—Loomis, *Pepper's Syst. Med.*
108 The greater the dilation the more danger there is present.
109 Louis, *On Phthisis*;—Van Santvoord, N. Y. Med. Jour., Oct. 10, 1883, p. 413.
110 Doubleday, N. Y. Med. Rec., Mar. 28, 1885, p. 343;—Heither, *Med. Chir. Rundsch.*, Wein, 1882, s. 485;—Kühn, *Deutsche Arch. f. k. Med.*, Bd. xxi;—Van Santvoord, N. Y. Med. Jour., Feb. 14, 1884, p. 201; et al.
111 Louis, *Jour. Am. Med. Assn.*, Jan. 19, 1889, p. 77;—Maragliano, *La Riforma Med.*, Oct. 30, 1888.
112 U. S. Marine Hosp. Rpts., 1883, p. 224.
113 U. S. Marine Hosp. Rpts., 1883, p. 199. See also Brudi, *Allgem. Med. Cent. Zeit.*, Oct. 27, 1875.—Doubleday, *Op. cit.*, p. 348;—Smith, N. Y. Med. Rec., Dec. 17, 1887, p. 768.
114 U. S. Marine Hosp. Rpts., 1884, p. 185. A case.
115 See Loomis, N. Y. Med. Rec., June 5, 1889, p. 25, for a case.
116 Hermann, *Lungenentzündung*, München, 1880, reports a case of hæmatemesis on the sixth day, with recovery. I have met with one case.

ELECTRICITY IN GYNECOLOGY.

BASED ON AN EXPERIENCE OF OVER ONE THOUSAND APPLICATIONS.

Read before the Mahoning County Medical Society, February 13, 1893.

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The practice of gynecology, during the last two decades, has undergone more violent revolutions, perhaps, than any other branch of medicine.

But a short time ago it was believed and taught that displacements of the uterus were the foundation cause of nearly all pelvic troubles, and laboring under this delusion, but few cases of uterine disease could be properly treated without a carefully adjusted pessary. With nearly all gynecologists it was the *sine qua non*. To-day, the pessary is practically a thing of the past, and but seldom serves a useful purpose.

At one time the most powerful caustics were applied, without reserve, to the endometrium; but soon they were dropped for the milder ones, and still later, the hot water douche and glycerine or boro-glyceride tampon have nearly displaced them all.

At another time the lacerated cervix and perineum were the causes of all the ailments to which the unfortunate woman was subject, and operative procedure was the only remedy. The fallacy of such a claim very soon became apparent, and something else must take its place.

This and all other previous methods of procedure are to-day largely displaced by a sudden infatuation for removing the appendages of the uterus, a procedure which is already proving itself to be a futile effort to relieve the sufferer.

So many and radical changes in so few years can only be interpreted to mean one thing; and that is, results of none of the methods or lines of treatment have been satisfactory. I believe that the experience of those present will corroborate the following experience of the writer.

I have replaced a prolapsed uterus, carefully adjusted a pessary and followed out all the details in the general management of the case, and for a time felt secure in the belief that I had done much for my patient. So I had; but it was only to have her return to me in due time suffering from the results of the foreign body in the vagina, which served to fix the uterus more firmly, and thereby render it still more susceptible to injury by every misstep or jolt to which the body might be subject; perhaps she returns with increased tenderness of the uterus, a more profuse vaginal discharge than ever, erosions caused by the pessary, etc.

Or, may be, I have faithfully applied the glycerine or boro-glyceride tampon, in connection with a free use of the hot water douche, for from three to six months, once or twice a week, making my patient feel much better; but mortified in the extreme to have her return to me in less time than it took to relieve her, and find her in the same condition as when I first began to treat her.

It is in this state of gynecological science that we welcome to our aid a power which bids fair to remove from that branch of medicine an opprobrium which all must have painfully realized.

It is an energy as powerful for good as it is mysterious, and like all things in nature, equally powerful to harm when misapplied. As a therapeutic agent

- 114 I have met two cases.
115 See Chomel, Pneumonia, Leipzig, 1841.
116 See Forest, quoted by Chomel, Op. cit., S. 167.
117 See Chomel, Op. cit., S. 167;—Cullen, Prac. Phys., Phila., 1792, Vol. i, p. 185.
118 Lépigne, Op. cit., S. 153;—Mathy, Jour. Comp. des Sci., Méd. T. xxxvi, p. 334;—Dequesnel, Thèse de Paris, 1821, p. 14; et al.
119 See cases reported by Curtis, Boston Med. and Surg. Jour., May 11, 1876, p. 551.
120 See also Doubleday, N. Y. Med. Rec., Mar. 28, 1885, p. 343;—Peebles, Am. Jour. Med. Sci., May, 1848;—Strong, N. Y. Med. Rec., Mar. 16, 1889, p. 291.
121 Especially in the aged.
122 It was particularly noticed by Areteus. It was noticed in 12 per cent. of Speck's (Inaug. Dissert. Marb., 1870, S. 30) cases; very frequently in Wunderlich's (Inaug. Dissert., Tüb., 1858) experience, but rarely in that of Schapira (Inaug. Dissert., S. 42).
123 See Aetius, Medicinæ;—Chomel, Op. cit., S. 165; Cullen, Op. cit., p. 185;—Frank, Prax. Med.;—Kieversius, Prax. Med.;—Sennert, Prac. Med., Wittenb., 1635;—Wunderlich, Spec. Path.;—Zaccatus, Hist. Med. Amst., 1642; et al.
124 For further information see Doubleday, Op. cit., p. 343;—Fischer, N. Y. Med. Rec., Dec. 17, 1887, p. 162;—Fox, Op. cit., p. 172;—Jørgensen, Op. cit.;—Lépigne, Op. cit., S. 765;—Louls, quoted by Chomel, Op. cit., S. 145;—Petit, N. Y. Med. Rec., Nov. 5, 1887, p. 610; et al.
125 See also Dietz, N. Y. Med. Rec., Mar. 17, 1883, p. 290.
126 Traité de Méd. Prat., T. iv, Paris, 1843.
127 See Ashby, Lancet, 1881, Vol. i, p. 610;—Banti, Deutsche med. Wochenschr., Nr. 41, 1885;—Cullen, Op. cit., p. 183;—Doubleday, N. Y. Med. Rec., Mar. 28, 1885, p. 343;—Drake, On Fevers, p. 860;—Flint, Prac. Med., 1868, p. 305;—Huss, Lungentzündung, Leipzig, 1861, S. 132;—Kühn, Deutsche Arch. f. K. Med., Bd. xxi;—Loomis, Pepper's Syst. Med., Vol. iii, p. 313;—Money, Lancet, 1890, Vol. ii, p. 818;—O'Connor, London Lancet, N. Y., 1858, Vol. i, p. 517;—Parkes, Med. Times and Gaz., 1860, Vol. i, p. 187;—Rokitansky, Path. Anat., Vol. iv, p. 111;—Scheef, Inaug. Dissert., Tüb., 1882, S. 16;—Sturges, pneumonia, 1876, p. 80, and London Lancet, N. Y., 1883, Vol. i, p. 411;—Todd, Med. Times and Gaz., Dec. 18, 1852, p. 611;—Trousseau, London Lancet, N. Y., 1853, Vol. ii, 135;—Van Sautvoord, N. Y. Med. Jour., Jan. 24, 1885;—Waller, Inaug. Diss., Erlanger, 1877, S. 28.
128 London Lancet, Mar. 29, 1852.
129 Am. Jour. Med. Sci., 1861, and Op. cit., p. 180.
130 Caton, Lancet, 1881.
131 Op. cit., S. 132.
132 Op. cit.
133 Op. cit., p. 343.
134 Op. cit.
135 Phila. Med. News, Jan. 5, 1889, p. 7.
136 See also Chvostek, Wiener Jahrb., 1867;—Schapira, Op. cit.;—Stortz, Inaug. Dissert., Würzb., 1884, S. 64;—Samter, Inaug. Dissert., Breslau, 1881, S. 52;—Stecher, Inaug. Dissert., Leipzig, 1866, S. 28;—Speck, Inaug. Dissert., Marb., 1870, S. 47.
137 Alpinus, De Præparanda Vita, etc., Lugd., 1733;—Chomel, Op. cit., S. 244;—Colle, Cosmior Med.;—Kühn Op. cit.;—Maulius, London Lancet, 1881, Vol. ii, p. 479;—Ozauam, Epidem. Mal., Paris, 1818-27;—Et al.
138 See also Ashby, Lancet, 1881, Vol. i, p. 560;—Roger, Mal. Enf.
139 Bolles, Boston Med. and Surg. Jour., April 13, 1876, p. 426;—Brinton, Lancet, N. Y., 1860, Vol. i, p. 485;—Chomel, Op. cit., S. 222;—Clark, Lancet, N. Y., 1856, Vol. ii, p. 293;—Green, Quain's Dic. Med., 1883, p. 880;—Huss, Op. cit., S. 132;—Jacobi, N. Y. Med. Rec., Mar. 17, 1883, p. 301;—Sturges, Op. cit., p. 93;—Trousseau, Clin. Med., Vol. i, p. 688;—Ziemssen, Plenitis, etc., 1862, S. 198.
140 See Fuller, Lancet, N. Y., 1853, Vol. i, p. 64;—Huss, Op. cit.;—Ormerod, Op. cit.
141 This has been my individual experience and is affirmed by most writers on this subject. See Chomel, Op. cit., S. 222;—Skoda, Zeitsch. d. Gesellsch. d. Aerzte zu Wien., 1852; Et al.
142 See Coplaud, Med. Dic., N. Y., 1855, Vol. xi, p. 215.
143 Skoda, Op. cit.
144 See Aran, Bull. de l'Acad. de Méd., T. xxi, p. 142;—Trousseau, Clin. Med., Phila., 1873, Vol. i.
145 Radcliffe, London Lancet, N. Y., 1863, Vol. ii, p. 716. For a similar case see U. S. Marine Hosp. Rpts., 1887, p. 240.
146 The exudate has a slightly acid reaction. Speck, Inaug. Dissert., Marb., 1870, S. 47.
147 Money, Lancet, 1890, Vol. ii, p. 818, reports one case in which the sac contained twenty-four ounces of pus.
148 Todd, Med. Times and Gaz., December 18, 1852, p. 611.
149 Radcliffe, Op. cit., p. 716.
150 Alderson, London Lancet, N. Y., 1859, Vol. ii, p. 13.
151 Wilks, London Lancet, N. Y., 1863, Vol. xi, p. 716.
152 See Roosevelt, N. Y. Med. Rec., March 24, 1888, p. 323.
153 See Chomel, Op. cit., S. 222;—Huss, Op. cit.
154 See also Chuckerbutty, London Lancet, N. Y., 1853, Vol. ii, p. 136.
155 Farre, London Lancet, N. Y., 1860, Vol. i, p. 143.
156 Alderson, London Lancet, N. Y., 1859, Vol. ii, p. 11.
157 Kirby, London Lancet, N. Y., 1860, Vol. i, p. 313.
158 Gibson, Prov. Med. Trans., 1844.
159 For further information consult Lejard, Rev. Méd., June 6, 1885;—Northrup, N. Y. Med. Rec., June 7, 1884, p. 651;—Roosevelt Hosp. Rpts., 1875, p. 25-1876, p. 25-1881, p. 20;—U. S. Marine Hosp. Rpts., 1884, p. 187-191;—and treatise devoted to diseases of the heart. Muffled heart sounds do not necessarily indicate pericardial effusion. See case, U. S. Marine Hosp. Rpts., 1889, p. 334.
160 Lungentzündung, Leipzig, 1861, S. 132.
161 Inaug. Diss., Würzb., 1880, S. 36.
162 Inaug. Dissert., Würzb., 1881, S. 65.
163 Inaug. Diss., Erlanger, 1877, S. 28.
164 Bramwell, Am. Jour. Med. Sci., July, 1886;—Clarke, London Lancet, 1881, Vol. ii, p. 263;—Fournier, Gaz. des Hôp., January 30, 1886;—Gulliver, St. Thomas' Hosp. Rpts., Vol. xii;—Hopkins, N. Y. Med. Rec., February 6, 1886, p. 159;—Osler, Phila. Med. News, January 21, 1882, p. 80;—Peacock, St. Thomas' Hosp. Rpts., 1875;—Sutterthwaite, N. Y. Med. Rec., February 27, 1886, p. 239;—Upshur, Phila. Med. Exam., 1841;—Wysskowski, Virchow's Arch. Bd. ciii, Heft 2; Et al.
165 See Gerhard, Dis. Chest, Phila., 1860, p. 379.
166 See cases by Féréal, L'Union Méd., 1879, Nos. 27 et 28;—Loomis, N. Y. Med. Jour., January 19, 1889, p. 78;—Duclos, Rev. Gén. de Clin. et de Thérap., Jan. 17, 1889.
167 U. S. Marine Hosp. Rpts., 1886, p. 225.
168 See Homburg, Op. cit., S. 113.
169 Prudden, N. Y. Med. Rec., October 23, 1886, p. 469.
170 Butler, N. Y. Med. Jour., October 10, 1885.

in gynecology, we have come to regard it as the most powerful weapon against disease at our command.

In order to explain its therapeutic action in a large proportion of the cases which apply to the gynecologist for aid, it will be necessary to say something as to the pathology of these cases. The everyday patient that comes to your office seeking relief from miseries which she has suffered until she can endure them no longer, details to you a history something like the following: Backache, leucorrhœa more or less profuse, sharp pains in the region of one or both ovaries, perhaps, displacement of which she herself is conscious, headache, severe pain or a feeling of oppression on top of the head, nervous, irritable, sleepless and perhaps emaciated. She may also tell you that she has a strange feeling in her head as if she would go insane.

Many of the younger and ambitious gynecologists would diagnose the case as one of badly diseased ovaries, pus tubes, ovarian abscess, etc., and recommend castration as the *only means of saving the patient from an early grave*. Especially is this conclusion reached without hesitation, if an examination reveals more or less tumefaction in one or the other side of the pelvis.

We do not wish to be identified with that class of pathologists. We do not believe that the ovaries or annexes are the primary seat of the trouble in more than an extremely small proportion of these cases. The trouble is, without doubt in my mind, primarily in the uterus. The endometrium we believe to be the point of departure.

A catarrhal inflammation is no doubt the first step in the departure from the normal condition, and with others, I believe microbic life to be an active agent here, whether as a cause of the catarrh or a result. In either case the trouble, once set up, is the least likely of all known disorders to be self-limited. The catarrh continues, congestion of all the pelvic viscera sooner or later follows, the uterus becomes enlarged to two, three or four times its normal size, and gradually the trouble steals along to the appendages, and there adds still more fuel to the flames.

If this is the correct pathology and course of many of these cases, what benefit could be expected from amputating the last to be attacked and smallest portion of the disease—the ovaries—and leaving the corner stone of the trouble—the uterus—remain? These facts explain to me the frequent failures to relieve the patient of symptoms, on account of which she submitted to undergo so great an ordeal.

I shall here introduce a brief history of a case illustrative of this point:

Mary —, æt. 26 years, unmarried, has always been very corpulent, menstruation always very scanty. Has suffered pains more or less severe for a number of years; usually has had profuse leucorrhœa.

Electrical treatment was attempted, but being unable to introduce the intra-uterine electrode on several occasions, efficient treatment on that account not being given, the patient became discouraged, and asked permission to consult another physician, which was granted.

Only once while the patient was under my care, did I succeed in getting a sound into the cavity of the uterus, when it passed in about 3½ inches.

In less than two weeks from the time she was last at my office, the physician whom she consulted had removed a pair of atrophied ovaries. Before the operation, you will remember, her menstruation was always scanty. Since the operation, covering a period of more than a year, she has been unwell almost continually.

The patient's own words will best tell the story: "I had

shed tears before the operation, but I have shed a great many more since." She now claims to have more pain than she ever had in her life.

What could you expect from detaching a pair of atrophied ovaries from a uterus large enough to allow a sound to enter three and one-half inches? Such a procedure, in my opinion, is putting the cart before the horse; it is like amputating a dropsical limb to get rid of the dropsy when the cause still continues to exist in some one of the vital organs.

The plea which I wish to make for this class of patients is that in electricity we possess an energy which is capable of curing the metritis, causing at the same time absorption of the hypertrophied tissues and tumefactions of the uterus itself, as well as the other pelvic viscera, causing also the uterus to contract and assume its normal weight and mobility, and sometimes position; and while this is going on the sharp pains in the pelvis, the soreness, feeling of weight, leucorrhœa, etc., and the much dreaded diseased ovaries, gradually vanish, thus relieving the patient, and that too without putting her life in jeopardy, or mutilating her body, but leaving her as nature made her, a woman and not a *thing*.

The action of electrical energy in these cases can be fully appreciated only by one who has seen and examined one of these patients before and after a systematic course of its application. The great change which takes place in some patients in a comparatively short time is almost incredible. In many others its effects are not as striking, but sooner or later, through care and perseverance, the results for which we are laboring will come.

A mathematically accurate and scientific explanation as to how this work is done cannot be expected from me at this time, inasmuch as no physicist has yet told us what this mysterious agent is. We know it only by its effects. We know that under certain conditions of matter, certain phenomena result, which we attribute to a something which we call electricity.

But, little as we may know of this energy in itself, and great as may be the changes in views regarding it in the future, the laws which govern its behavior are well understood and immutable.

In accordance with these laws we are able to handle it, measure it, guide, direct and control it. Having then a thorough knowledge of the behavior of a current, and the necessary skill to manipulate, we apply it in the treatment of disease, and the results we obtain are substantially the only evidence we have that *anything* has been done. If then we fail to show just how this or that thing is done, our consolation is that we are no worse off than the physicist himself. Or, until you can explain just how quinine cures malaria, drug medication is no farther along than the treatment by electricity.

We shall content ourselves, therefore, by stating briefly what, according to our present state of knowledge, is believed to be the mode of action of the electrical current in the cure of pelvic disease, and stand ready to have these views criticised, upset or verified as investigation in this direction may advance.

The action of an intra-uterine application is not a single one. We have first, an action on the part which is in immediate contact with the active electrode, which is acid caustic with the anode and alkaline caustic with the cathode, the extent of cauterization being accurately controlled, and suspended

instantly at any point, a thing which is impossible when caustics are introduced from without. Not only is the action of the two poles different in that the one is acid and the other alkaline, but we have in the anode an unquestionable hæmostatic action, tending to arrest hæmorrhage, a sedative action calculated to relieve active congestion, inflammation and pain. The action of the cathode is directly the opposite; it increases the tendency to hæmorrhage, incites congestion, inflammation and pain. It is this stimulating and exciting action of the cathode that so often renders us invaluable service in the chronic forms of pelvic disease.

Besides this action of immediate contact, it is universally accepted that there is a decided inter-polar action; *i. e.*, an action upon all the tissues included between the poles. In the case under consideration, this action affects the walls of the uterus, the cervix, all the appendages, and in fact no portion of the nerve and muscle supply of the pelvis escapes it.

To this action is attributed the absorption of the hypertrophied tissue, shrinkage and contraction of the uterus, dispersion of inflammatory products and tumefactions in the pelvis, thereby rendering a previously heavy and fixed uterus and appendages lighter and more movable, and thus affording entire relief from a trouble which seemed so formidable.

There is still another action of the electric current which has recently attracted some attention. A passing notice of it is all that space will allow. Some recent writers are of the opinion that some of the good results obtained from intra-uterine galvanism depend upon the power of the current, especially the anode, of destroying microbes. This power can easily be tested, and no doubt the question will soon be put beyond cavil.

Some of the more important special applications of the electric current in the cure of pelvic disease shall next engage our attention.

Uterine hæmorrhage is more certainly controlled by electrical energy than any other known remedy. In subinvolution with hæmorrhage, the swelling faradic current of low tension and slow interruptions, intra-utero-abdominal method, seems to me to be one of the most brilliant in its results of any remedy we possess. The patient can usually be cured in from two to five weeks.

I use the ordinary platinum intra-uterine electrode as anode in the uterus, and clay electrode as cathode on the abdomen. The application is made "swelling" and continued about ten minutes, of a strength up to the point of tolerance. In this use of the current I have never been disappointed. Moreover, the results are so quick in showing themselves that there is no room for doubt as to what has done the work.

I shall speak later on of its effects in hæmorrhage in uterine fibroids.

Menorrhagia and metrorrhagia as found in that everyday class of patients to which I have already referred, are usually best treated with the galvanic current. Unless the hæmorrhage is very severe, however, I usually disregard it, and strive to give the treatment best suited to the associated conditions, or the conditions upon which the hæmorrhage depends.

The history of the following case will illustrate a common phase of uterine disease, and I shall give, in detail, the history of the case with results.

May 29, 1890.—Mrs. B., æt. 39 years, married and has three children, youngest ten years old. Has been in ill health ever since last child was born. Menstruation has always been very free, but during the last five years, has often been alarmingly profuse. The periods are quite regular as to time. Suffers severe backache the most of the time, sharp, shooting pains in the region of both ovaries. Head symptoms have been very prominent. Pain and distress, especially in the back part of the head, sometimes on top. Ideas are confused and often has a feeling as if her mind would become disturbed; walking is difficult and sometimes impossible. During the last five years hæmorrhages have been so profuse as to require her to remain in bed from seven to twelve days every month. There have been periods of six months during which she has been unable to do any shopping up town, a distance of one-eighth mile from her residence. An examination revealed nothing strikingly abnormal except a uterus about three times its normal size. Treatment was instituted with a view of relieving pelvic congestion, and reducing the size and weight of the uterus thereby expecting to overcome the hæmorrhage and pain, as well as the constitutional symptoms resulting therefrom.

Intra-uterine galvanism was employed from June 29, 1890, up to Dec. 11, 1890, a period of five months and a half. During the first four months, there was slight improvement from time to time, but from this time on for the next six weeks I was able to use currents of much greater intensity and improvement was rapid. At this time, Dec. 11, the patient was feeling quite well, free from the ovarian pain and distressing head symptoms, as well as the excessive hæmorrhages, and the uterus about half its original size, and it was mutually agreed upon, that she should take a rest and see what would follow. Each succeeding period seemed to be an improvement on the preceding one, which improvement was progressive up to July 4, 1891, at which time she left the city to make her home in Pennsylvania.

The occasional reports I have had from her since then have been favorable. I had a letter from her husband September, 1892, in which he stated that his wife was well and doing all her own work with ease. He also stated that she had gone up in weight from 116 to 146 lbs; and that he could attribute the great change in her condition to nothing else than the treatment she had received at my hands. This has probably been the most tedious and trying patient I have ever handled, yet the final outcome was satisfactory, and no one will regret the time and labor spent.

One more case to illustrate a different phase of disease, and more rapid results:

Mrs. S., æt. 38 years. Married nine years, sterile, menstruation scanty, accompanied with distressing headaches, especially on the top of the head, severe paroxysmal pain in the left ovarian region and dyspeptic symptoms prominent. An examination revealed chronic metritis, leucorrhœa, abrasions surrounding external os, and an indurated mass in the left side of the pelvis about the size of a small lemon, shading off into the surrounding tissues.

The treatment covered a period of about eight weeks, viz: from June 25, 1890, to Aug. 18, 1890, during which time eleven applications were made. After six applications the abrasions about the os, and the mass of indurated tissue in the left side of the pelvis had entirely disappeared. Her menstruation following the eighth application lasted eight days and never had as free a flow in her life. After eleven treatments she was dismissed as well.

It will not be out of place to repeat here that this lady had been married nine years and had never been pregnant, although she was very desirous of becoming so.

On December 9, 1892, she gave birth to a fine nine-pound boy.

Dr. Apostoli declares that when pus exists in the annexes, intra-uterine cauterization of from 80 to 150 m's. will positively not be borne. His experience

is sufficient to give weight to the declaration. I accept it as true.

In an experience of some magnitude I have personally met but few cases in which this current was not well borne, by carefully educating the uterus up to it. This demonstrates to my mind one of two things, viz: either I have had a very unique experience, or else *pus tubes* and *ovarian abscesses* are far from as common as many gynecologists would have you believe. Of course, they do exist, but certainly not in every woman who may have sharp pains in the pelvis or even tumefactions on one side or the other.

Paul F. Munde, in an article in the September number of the *International Journal of Surgery*, says: "I am convinced that in the past, many uterine appendages have been removed which, with a little patience and perseverance on the part of the physician and the patient, could have been saved. I see every year several hundred cases at least of this disease, and if I look back during the last fifteen years, I may well say that I have seen at least from two to three thousand women suffering from acute, sub-acute and chronic inflammation of the uterine appendages. It would not have strained my conscience very much if I had operated on, we will say, one-half of these cases; because in many of them the appendages were undoubtedly inflamed, adherent, and more or less enlarged; but I can say, and I believe with all due modesty, that I am proud of having operated only on sixty-three such patients, two of whom died, the rest making an uneventful recovery; I wish I could say as much of the ultimate results of the operation. In eight, menstruation persisted with increased intensity for from two to three years after the operation, and in a larger number of cases the pains for which the operation was performed continued with almost no improvement." Further on he says: "I have seen a tube which was the size of a small banana gradually diminish, shrivel and entirely disappear after several months of treatment."

"A lady from Buffalo consulted me eight years ago for as violent a salpingitis as I ever saw. Her ovaries and tubes were bound down, uterus absolutely immovable, the right appendages enlarged to size of an orange, and I felt obliged to tell her that an operation was imperative. She refused the operation, but insisted upon being treated. Local treatment with persistent local use of galvanism for months so materially improved this case that now she has been in very fair health for five years and has seldom been compelled to consult me or any other physician for her pelvic organs."

With the words just quoted I close this part of the subject.

Another important application of electrical energy in gynecology is for the purpose of relieving pain.

Dr. Apostoli, as well as numerous American gynecologists, are almost extravagant in their praise of the use of the high tension faradic current, with rapid interruptions, as an analgesic. My experience in this use of the current is comparatively limited, but I have seen enough of it to convince me that, with the proper instrument for the purpose, much good can be accomplished in this direction. Of all electrical appliances, however, there is probably none more difficult to procure than the instrument adapted to this use.

This instrument must possess two definite qualities in order to make it a success. It must produce a current of extremely high tension, and it must be constructed so as to produce rapid interruptions. The former quality is obtained from a very long and very fine secondary coil, and the latter quality depends upon the construction of the vibrator.

Dr. Hutchinson, of Providence, R. I., claims to have determined about the rapidity of vibrations necessary to obtain the best results. This he puts at 35,000 per minute, which rapidity will cause the vibrator to emit a musical tone which will correspond to first C above middle C. When the frequency is much greater than this, the current is no longer appreciable, and no longer has any analgesic properties. It remains to be seen whether or not other investigators shall verify the observations of Dr. Hutchinson.

I shall here introduce into this paper another use of the electrical current in gynecology, not on account of personal experience had with it, but on account of what seems to me to be of such practical importance that I am exceedingly desirous of having the matter before you for discussion. I refer to its use in ectopic gestation. I have reasons for believing that in electricity we have a power of converting what may later on prove to be a terrible catastrophe into an insignificant and harmless condition. Gynecologists in whom surgical tendencies predominate will advise laparotomy at once, or as soon as there is little doubt of the real condition of things. The procedure seems to me to be too radical and unwarrantable. Unless rupture has occurred, and provided it has not gone beyond the fourth month, there can hardly be a comparison. This statement is made on the following grounds: 1st. There is no possible condition which will in any way interfere with efficient electrical applications at the moment that ectopic gestation is first suspected. Thus we have an opportunity of taking advantage of treatment at a time when any method is most effectual, and when there is the least possible danger. 2nd. A current of a strength sufficient to destroy the life of the fetus, when properly applied, can be administered without an anæsthetic, and if necessary, without an assistant, and without the slightest pain or discomfort to the patient, and does not require her to remain in bed more than several days or a week.

An attempt is often made to intimidate the advocates of this plan by holding out the possible danger of rupture during an electrical application. The facts are, however, that although many hundreds of cases have been operated upon in this way, I can find but a few reported deaths, in one of which puncture was used, at present considered highly improper, and the method in the other cases is not known. With modern methods the danger must certainly be exceedingly small, and not to be compared with the dangers of a laparotomy.

Although the length of this paper is becoming much greater than was expected, it cannot be closed without, at least, a brief reference to a subject that has been the source of many acrimonious discussions during the last few years. I refer to the treatment of fibroid tumors of the uterus by electricity.

When such men as Sir Spencer Wells, Thomas and Skene Keith, Playfair and Stevenson, of Great Britain, and Munde, Massey, Goelet, Martin and numerous others of this country, have substantially discarded the knife and adopted the Apostoli method,

claiming for it advantages over any other method, it will no longer do for men who have not tried the method to stand back, shrug their shoulders and wink at it, and try to console themselves by the antiquated idea that electricity in medicine is quackery. The question is no longer one of theory, but one of practical facts.

Not every tumor of the uterus is curable by electricity; but I believe that every *fibroid* tumor can be symptomatically cured.

Myomata, or the very soft variety of uterine tumors are not so much benefited by this treatment, and in this variety requires great care in its application.

But in the case of fibromata or myo-fibromata we may make the following claims without reserve: Intra-uterine cauterization, from 100 to 250 milliamperes, will arrest hemorrhage, relieve the pain and reduce the size of the tumor, sometimes slightly, and sometimes greatly. In the case of small tumors I believe that they are often made to disappear entirely.

The almost absolute freedom from danger in this method of treatment may be inferred when it is known that Apostoli lost but two out of two hundred and seventy cases, and Thos. Keith in a large number lost but one.

I can do no better in this connection than quote a few paragraphs from a man who to-day stands, perhaps, unparalleled in his success in hysterectomy. I refer to Thomas Keith, of London. He says:

"What I now plead for is that for a time all bloody operations for the treatment of uterine fibroids should cease, and that Apostoli's treatment, as practiced by him should have a fair trial.

Hysterectomy, remember, which is performed every day for a complaint that rarely of itself shortens life, kills every fourth of fifth woman who is subjected to it. This mortality must cease; it is not a question of surgery, it is a question of humanity. Every time that a disease can be cured without resorting to a bloody operation progress is made in our art, and there is a gain to humanity; while surgery is the better for being purged of a deadly operation. It may seem strange to some that after the results I got in hysterectomy—results that almost made it justifiable—I should now begin to throw stones at the operation instead of trying still further to improve upon it; and but for Dr Apostoli I would now be doing so. I would give something to have back again those sixty-four women that I did hysterectomy for, that I might have a trial of Dr. Apostoli's treatment upon them. I have thrown over all surgical operations for this new treatment, and the longer I follow it the more am I satisfied."

In conclusion, I cannot refrain from anticipating some of the stumbling blocks that will naturally be hurled in the pathway of the sincere, earnest and efficient worker in this field of electro-therapy.

The application of electricity in gynecology does not differ in certain respects from any other art. Skilled work is not usually the result of unskilled hands, and nowhere is this more true than in the application of electricity.

Nor is this skill easily attained by every one. Certain requisites are indispensable to begin with. First and foremost there must be *earnestness of purpose*. Unless enthusiasm enters into the work failure must result. Other essentials are a thorough knowl-

edge of the behavior of a current, a thorough equipment with apparatus and instruments, mechanical ingenuity, a hand capable of delicate and gentle manipulations, and a *bountiful supply of time and patience*.

In addition to this, there is such a thing as *special aptness* for certain kinds of work, and when this is associated with the other requirements mentioned, the claims we have made will certainly be verified.

The venerable and grand Dr. Robert Newman, of New York, who has so successfully treated hundreds of cases of stricture of the urethra by electrolysis, has been striving for years to force upon the profession at large just how he accomplishes it, and yet we find men here and there decrying the method as inefficient and dangerous, claiming that they had tried it, and in some instances exposing their abominable ignorance by admitting that they had produced cauterization, and that the treatment was followed by a worse stricture than the one it was attempted to cure. We simply say that Dr. Newman does not cauterize with his own hand, and when some fool through his ignorance and clumsy manipulation does do so, neither Dr. Newman nor his method are responsible. It is the operator alone, and that too in spite of clear and explicit directions in every detail, laid down by Dr. Newman. Will a Lawson Tait or a Joseph Price submit to have the results of their laparotomies judged by the results of the operator who has killed half of his patients? By no means. We must distinguish between the *method* and the *operator*. They are entirely different factors. All we demand in this matter is fairness. We demand that each factor shall carry its own proper share of responsibility. We demand that you do not shoulder upon the method, responsibilities which belong to an individual operator.

SHOULD MEDICINE AND DENTISTRY BECOME A FUNCTION OF THE STATE?

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In these days when the functions of the State are somewhat rapidly increasing, so that we hear without amazement proposals that the State shall undertake to manage railroads and telegraphs, and the municipality shall furnish gas and electric lights and manage street railways, we may ask if this extension of governmental activity can effect the medical profession. The right of the State to interfere in the preservation of public health is now recognized. Quarantine laws, laws regulating medical and dental education and practice, building of hospitals and asylums, etc., shows that the State assumes certain medical functions. How far they ought to extend may well be a legitimate subject of inquiry.

I will omit that logically important portion of the discussion concerning the sphere of the State and assume that when anything can be better done by the State than in any other way, and that the greatest good to all is thus secured, then the State should undertake this task.

We notice at the start that there is considerable difference between preventive medicine and curative medicine. This difference, especially in the case of dentistry, is more apparent than real. But let us

take it as a basis of division and consider first preventive medicine and dentistry. Our first proposition may then be thus stated. Conservative dentistry and preventive medicine cannot develop except as a State function.

Is it necessary to elaborate the importance of conservative dentistry and preventive medicine? What proportion of dental work is plate work? How much of this could be prevented by proper and timely care of the teeth? How many that now lose their teeth before thirty years could retain them for life? How much ill health and disease sequent to digestive disorders could be prevented? How many years of life could be saved? How much is now lost to the community? The statement of these questions may suffice to indicate the importance of conservative dentistry.

Let us then turn to preventive medicine. Without assuming to give an exhaustive statement of its scope, let me call attention to a few of the things it undertakes to do.

First, it aims to absolutely prevent those diseases of infectious or contagious, *i. e.*, parasitic character, by quarantine, isolation and destruction of their causes, and, as fast as our knowledge permits, by producing artificial immunity.

Second, by securing freedom from adulteration and contamination of food, water and air, by attention to sanitation of dwellings, school houses, work shops places of public assembly, etc., by careful regulation of occupations of dangerous character, it aims to procure such conditions as will best secure the individual in the possession of a healthy body, able to resist the attack of such diseases as cannot be banished, and withstand the ever present hostile influences of time and limitations of nature.

It is to realize more or less completely the last objects that State medicine, ever since there has been such a department of governmental activity, has aimed. To destroy infectious diseases was a dream that could hardly come to a sober practical man until within the last few years the immortal labors of Pasteur and Koch have paved the way of hope. Even now, however, when we contemplate the still imperfect knowledge of the life history of disease germs and the means of destroying them, our ignorance of the ways in which they are spread, the great obstacles to the sanitary control of the population in our large cities, it may seem idle to hope for such a result. Let me remind you how equally Utopian seemed the idea of an aseptic surgical operation, or the banishment of erysipelas and puerperal fever from the hospitals to one who, twenty or thirty years ago, lived in their germ infected wards.

Without spending more time in defining the scope of preventive medicine or elaborating its importance let us consider the proposition that preventive medicine and preventive dentistry cannot develop, except as a function of the State.

The general problems of sanitation, such as the sanitary disposal of sewage, prevention of contamination of the water supply and adulteration of food, etc., are now generally recognized to be the function of the State, and need no further argument. I will simply observe that sanitary provisions are very imperfect and will remain so until they are under the control of the medical profession, and that a State functionary. Is all the influence and wisdom of the profession brought to bear in favor of the best sani-

tary conditions? Is it not a fact rather that most of the energy of the profession is spent on curative measures and but little systematic effort made in preventing disease? Consider the epidemic of typhoid fever in Chicago last year. The sewage of one hundred thousand people is poured into the lake on the north shore. The intake tunnel, extending out about one thousand feet originally, is now still nearer the new made land, formed by all sorts of debris and refuse filling. Water was pumped from this intake and sent to our homes, poisoning with typhoid germs thousands, and killing twenty times as many as die from this disease in the great dirty city of London. Why was this done? Simply that the engineer might save coal and make a good record. It is easier to pump from the short tunnel than from the crib. Is the influence of the profession brought to bear on this sanitary problem? But why should the physician care for good sanitary conditions? He is financially interested in curing disease. Every case of typhoid fever is worth thirty to three hundred dollars to him. Are lawyers expected to advocate measures for decreasing litigation? Do undertakers lie awake nights thinking of means to decrease the death rate? Well, by our present system can one expect the energy of the medical profession to be concentrated on sanitary measures that would take away two-thirds of its income? The fault is in our present system under which the physician profits, as does the apothecary, by an increase in sickness. As a result sanitary measures are left in incompetent hands. The profession is poorly educated on sanitary problems; its attention is not given to these problems. This explains why such a dangerous system of sewage exists in Chicago. This is the reason why the Bridgeport pumps, which carry the sewage into the canal, are allowed to get out of order. This is why so serious a charge can be brought against the officials, a charge the truth of which is admitted by them, to the lasting disgrace of the fair name of our city. Until we have a medical profession well educated in sanitary problems, paid to prevent disease, and who should pay but the State, can we expect the enactment and execution of efficient sanitary laws?

The same question arises when we consider the second function of preventive medicine, viz: the eradication of infectious and contagious diseases. I shall consider the proposition that the eradication of these diseases can be accomplished only by the State assuming entire control in each case of the quarantine or isolation, the treatment and the measures of disinfection. Consider the condition at present existing in this State. Diphtheria, scarlet fever and small-pox must be reported and placarded. No pretence is made of attempting to prevent consumption and pneumonia. But in case of the diseases mentioned the measures taken are so absurdly inadequate as to be almost ridiculous. It is as if a surgeon should make a show of disinfecting the skin in a laparotomy and then work with dirty instruments and hands with filth under the nails. A statement of the sources of infection that are overlooked shows the impotence of placards, and at the same time proves the proposition that only the State can cope with the problem.

First, there are many cases of contagious diseases in poor families where physicians are not called, and which of course, are not reported. These are generally in the densely populated districts and become

fruitful sources of infection. The extent to which infection may in such cases extend has recently been demonstrated in the sweat-shop investigation, which revealed instances where cloaks and other garments that were being made at cheap rates, and soon to be sold in our large stores, were used to cover children sick with diphtheria and scarlet fever.

Next, many cases where physicians are called are not reported. Frequently great pressure is brought to bear upon the physician, to have him withhold his report. The parents of a sick child keep a store or boarding house. Well, it is to the interest of the doctor to please the one who pays his fee. The diagnosis is, therefore, left uncertain, and often, if the case terminates badly, the crape is on the door before the red card.

Then, again, the case has been reported and carefully isolated. The attendants conscientiously try to avoid spreading the contagion, but the physician himself must pass from the sick room to other patients. Has he some charm that keeps him from being a contagion carrier? Is not every physician almost certain that he has sometime literally carried disease, and often death with him? How can the State manage better? Leave the care of all contagious diseases to specialists who treat nothing else, who learn the technic of isolation as a competent surgical nurse learns the methods of asepsis, who are paid by the State and therefore independent of patrons, and called by those who need them most, the poor. These men shall also learn scientific measures of disinfection, shall learn where infectious matter resides and how it is rendered innocuous. Then we should see less confidence reposed in a little harmless sulphur smoke, and little saucers of chloride of lime. Without such a system is there any hope of eradicating contagious diseases, and are not our present measures almost absurd?

There is one other function of State or preventive medicine in relation to contagious diseases that I must mention, for from the nature of the case it must be the work of the State, viz.: the artificial production of immunity by preventive inoculation. The recent work in the study of attenuated virus or the immunizing power of bacterial cultures under abnormal conditions of growth, gives ground for hope that the accidental discovery of Jenner may not remain alone; but that we may find protection against other diseases. Such extension of protective vaccination must come from the State. To prove it let me call attention to the great dangers of the present plan of allowing irresponsible individuals to supply vaccine virus. At present any one can run a vaccine farm. As a result, much of the vaccine in the market is impure and unsafe. So serious a matter is this that it furnishes some ground for the anti-vaccination sentiment that in some quarters is rather threatening. The State must soon assume a most rigid control of these vaccine farms. How much more important will be the question of control when we find preventive inoculation for scarlet fever, pneumonia and consumption?

The question of preventive dentistry is somewhat different from that of preventive medicine, in the fact that preventive dentistry, when developed, includes all dentistry. However great the development of preventive medicine, the physician must always find room for the exercise of his art in alleviating pain and supporting weak, overworked or worn out

bodies. The dentist, on the other hand, may confidently hope for the time when he need not make the humiliating prognosis of death in case of the parts of the body committed to his care. I am told that in those parts of the city where, on account of ignorance or poverty, people pay but little attention to their teeth, four-fifths or nine-tenths of the dentist's work is in extracting and plate making, while dentists whose practice is among what is called the better classes, derive four-fifths of their income from filling. Hence it seems reasonable to say that when a way is furnished to extend the advantages of the dental art to all, preventive dentistry will develop to include practically all dentistry.

And so we come to a consideration of the probable effects of such a change of system, its merits and defects, the result to the community and to the profession. It may be taken for granted that what is for the best interests of the community is for the best interests of the profession in the long run, and what is harmful to the profession is not for the best advantage of the community. Hence, we consider the question of making the dentists and physicians (for the same problems concern both) State officers, by studying its effect on the community and on the profession; and naturally we ask first, how would it affect the profession?

It may be admitted that the new system would be for the benefit of the poor. We may admit that if a practicable scheme can be devised by which every family, no matter how poor, can have the best advice and education in the proper care of the mouth, and the services of a well educated and scientific dentist in the management of the teeth of the child, from infancy to manhood, it would result in a great decrease of painful disorders of the mouth and digestive diseases, and a great improvement of that important body of the community, the workers. But will the result be equally as fortunate for the profession? The character of a profession is determined, to a considerable extent, by the class, standing and character of the men who enter—the recruits. The inducements which determine a young man to enter the medical profession, including of course the dental branch, are its emoluments, the dignity which attaches to a learned profession, and the opportunity which such a profession gives for living a life engaged more or less in the prosecution of intellectual and scientific work.

Would the new system decrease the emoluments? Without making any attempt to work out in detail the organization of the medical corps in our proposed system, we must contemplate of course the gradation of physicians and dentists according to their experience, skill and ability to originate, direct and control, or assist and attend to details, and the necessarily consequent gradation in their remuneration. Yet it is not to be expected that any State employé can ever expect to receive the large fees, over ten or twenty thousand dollars, to which a few can now attain. On the other hand, many well educated, competent men, who perhaps are deficient in that business tact that now is so valuable to the ignorant and unscrupulous and boasting quack, and often so lacking in the first few hard years of the student, will be saved the bitter and sleep destroying anxieties of the first year's struggles with humiliating poverty. Would not this consideration attract to our profession a class of men better fitted to develop its scientific and

therefore its most valuable side? Are the men who make the biggest incomes our most valuable members? Is it not true that a certain kind of quackery is often involved in making the most money out of the business of medicine and dentistry? Has not much of the work in bacteriology, pathology and experimental therapeutics, that has so greatly advanced our art within the last thirty years, been done by men who are not counted among those with a fifty thousand dollar income, who in fact are often paid by the State?

The fact is, as J. S. Mill observes in his Autobiography, in congratulating himself on having a position in the East India House, that a definite, secure salary is one of the best conditions for good thinking. This leads to a consideration of another attraction to the recruits of our number, viz.: the chance to live a life engaged more or less in the prosecution of intellectual and scientific work. I shall freely admit that if a man aims for the high opinion of his colleagues he must do good scientific work, and that this competition is a great stimulus. But it may be claimed that this stimulus would not be withdrawn by assuring a salaried compensation. Indeed, the competition to scientific honors might be greater, as then, money compensation being fixed, no other compensation than that of increased reputation would be looked for. And how does the case stand with the young and poor member of the profession? Instead of wasting his time in more or less futile or humiliating expedients to increase his practice, by increasing his acquaintance through clubs and societies, studying the problem of combining economical living with keeping up pretences and denying himself books and necessary instruments, for the prosecution of his studies, he should be at liberty to pursue his own bent, secure of a comfortable living, and supplied with all necessary means of original investigation. Would it not be reasonable to look for a considerable increase in the total amount of scientific work by the profession? What induces our best students to teach in colleges and institutions? A salary, often too low, but fixed, with opportunities for intellectual work. And in spite of the isolated life of the army surgeon, the chance it gives for scientific work attracts to it many of our best men, who, like Sternberg and Billings, give honor to the whole country.

The third attraction for our medical recruit is the idea that he is coming to the dignity of a learned medical profession. Could the suggestion come to him that his dignity would be detracted from were he allotted to care for a district of poor foreigners, educate them in the uses of the tooth-brush, or teach them how to live to keep away diphtheria or cholera? If it is more degrading to care for the poor than the rich, the hospital physician suffers, the public school teacher suffers. But who that has had experience does not know that he is more apt to meet with inconsiderate treatment from a whimsical woman on Prairie Avenue, than from Milwaukee Avenue working people. And the unjust charges that we now have to meet, the annoying dismissals from some of our most interesting cases, is it not largely the result of the system that makes us the employes of individuals? Do we not waste time and self-respect, in humoring ignorant whims in order to keep the fees and influence of a "patron?"

Looking the matter squarely in the face, it must be admitted that the service rendered by the physi-

cian is a personal service, like that of a barber, or manicure, or valet. When the recipient pays for this service, he is apt to look on his physician as differing only in degree from his other employes. This is entirely changed in the new system. Here we become officers of the State, charged with the important duty of preserving the health of the members, and incited to prosecute the development of the science of life, which fact raises the dignity of our profession to as high a plane as man's intellectual and benevolent nature can carry him.

I will also call attention to the fact, that when a considerable number in any profession are lacking in the general culture of well educated gentlemen, when its ranks are infested with a horde of charlatans, and when the public understand that there are hostile schools, one as good as another, between which it must decide, the good name of our profession is inevitably lowered. Let all this pass away with the institution of such strict admission examinations as are now required of candidates for the army and navy medical service, and there must follow an appreciable improvement in standing.

For these reasons, we can promise that the new system will prove a benefit to the profession, by attracting to it a better class of recruits, and surrounding its members with conditions calculated to incite them to work for medicine as a science instead of as a business.

Is it equally as clear that the community would be benefited? Practical men look first to the pocket-book. Perhaps it may be urged that as our plan contemplates the support of the profession from the public treasury, it is unjust for the bachelor with sound teeth to pay a tax for the support of the dentist to care for his Blue Island Avenue neighbor's family of a dozen. This is the old objection to the public school system.

At the beginning I declined to discuss the sphere of the State, simply assuming its duty to provide for the general welfare in the best possible way. The increased popularity of accident and mutual and labor insurance is accustoming people to the idea of insurance, of which this plan is but an extension or development. And notice its great economical advantages. State dentistry means timely prevention of diseased teeth. I do not need to say how much is thus saved. Much also may be expected from preventive medicine. How much is saved by preventing one case of typhoid fever? How many hours of time to the physician and attendants? How many weeks of time and vital energy to the patient? Often, how many years of life full of the brightest possibilities? And now, how much of the physician's time and strength is wasted by having his practice scattered over miles of territory, when it might be limited to one block, and divided over the whole range of medicine, when it might be limited to a specialty. What an opportunity would the new system afford for an extension of the principle of division of labor by the development of specialties. And how much is lost when the physician or dentist of valuable experience and skill is obliged to attend to time-consuming details that might be left to younger assistants. I believe it very safe to say that one-fourth the number of physicians now in Chicago, could easily care for the health of the city under the new plan.

I will notice only one more thing concerning the

way the community would be affected by the adoption of this new system. Will Mr. Jones be satisfied to have the State furnish him a physician and dentist, just as it supplies a teacher to teach his children? Probably he prefers to choose his own doctor. Well, if he is poor and has to go to the county hospital, he must accept the physician in charge. That is all right; but if he is rich it is a different matter. He may fancy that Dr. Smith is a better aseptic surgeon or dentist than Dr. Brown, and object to being consigned to the care of the latter. Perhaps some way may be arranged to let Dr. Smith have charge of the Prairie Avenue district. In the Methodist Church each individual is not allowed to choose the doctor for his soul, yet I have never heard of Dr. Bristol or Dr. McIntyre being sent to Podunk and plain Pastor Dryasdust being assigned to Trinity Church. We may learn to manage as well. But I must again call your attention to the fact that the family physician will be much less important under the State *régime* than he is now. The sanitary officer will be responsible for perfect plumbing in the house, and uncontaminated air and unadulterated food and drink. The vaccinationist, from his perfect laboratory, furnishes immunity from small-pox, scarlet fever, pneumonia and consumption. The visiting doctor, then, has often little more to do than to decide upon what specialist the patient shall call.

In presenting this subject, I have unwillingly been placed in the position of an advocate. Knowing that nearly every one to whom it is new, looks upon it as absurd, and sees only the objections that arise, I have been obliged to meet these objections in the style of an advocate. I have not attempted to say how the State shall organize its medical corps. I have only asked, is it reasonable that the State should assume the function of medicine? By establishing the propositions that preventive medicine can develop only as a function of the State, and that both the profession and the community would profit by making all medicine such a function, I have completed the proof.

SALISBURY DIET AS AN AID TO THE CLIMATE OF COLORADO SPRINGS, IN THE TREATMENT OF PULMONARY CONSUMPTION.

BY E. C. ATKINS, M.D.,
OF COLORADO SPRINGS, COLORADO.

The beneficial effect of Colorado climate on pulmonary consumption is too well known to call for comment, and that nearly all hæmorrhagic cases either recover entirely or are greatly benefited by residence in this altitude, is a well accepted fact, as hundreds of now well men, who came here for hæmorrhage of the lungs, will testify.

But with catarrhal or fibroid cases the results obtained by climate, while encouraging, are not so universally good. Many of this class, it is true, recover entirely or live in comfortable ill health for indefinite years; but we are all forced to recognize the fact that a large percentage of this class of cases do well only for a short time, if at all.

They improve for a while, perhaps a few months, possibly a year or two, but the disease is not arrested. Sooner or later, for some reason not always apparent, they begin to lose ground, the appetite fails, hectic reappears, diarrhœa is frequent and the patient

steadily fails in health in spite of all the efforts that are put forth to save him.

It is very difficult, if not impossible, to arrest the downward course of such cases with climate and medicine. The stomach, which is our sheet anchor, having failed, we are powerless to prevent the progress of the disease toward a final and fatal termination.

But it is in just this class of otherwise hopeless cases that the Salisbury beef diet proves to be of the greatest service. It takes up the patient at his weakest point, his stomach, giving tone to that organ, stopping nausea and diarrhœa, restoring that greatest of all blessings to a sick man, a good appetite, and eventually bringing him back to health and vigor. Under its influence the appetite becomes enormous; the patient who sickened at the sight of meat, now eats three or four pounds a day. The veins fill out and the red corpuscles of the blood increase many fold, a healthy glow suffuses the face, the nerves become quiet and steady, the muscles increase in size, and the general improvement is so marked as to be most gratifying to both patient and physician.

Let those who doubt the efficacy of this mode of treatment try it thoroughly. One case will be a revelation to them. Climate cures many, but let not those whom climate and medicine fail to cure be discouraged, for the pure and dry air and constant sunshine of Colorado, aided by such abundant nutritive and hygienic measures as are brought to bear by the Salisbury treatment, make a combination which rarely fails to bring comfort and a large degree of health to the otherwise discouraged and hopeless consumptive.

The following cases will speak for themselves:

Case 1.—A physician, 35 years old. Came to Colorado two and a half years ago with chronic catarrh of the right apex. Dullness and moist râles present over same area. Bad cough, muco-purulent expectoration containing abundant tubercle bacilli. Did well for two years, and then without apparent cause began to decline in health. Had fever every afternoon, great loss of strength and flesh, sat up only part of the day. Entire loss of appetite, loathed the sight of food. Was eating nothing but milk and soups. No solid food. Great nausea after eating and constant watery diarrhœa. All the usual means were used to stop the diarrhœa and improve the appetite, but without appreciable results. The patient was going rapidly down in spite of medicine and climate. Began the Salisbury diet as a last resource.

End of two weeks.—Diarrhœa stopped, nausea ceased, has less repugnance for food and is eating one pound of beef pulp a day.

End of four weeks.—Fever gone, has good appetite, strength increasing; general appearance much improved. Is out of doors all day.

End of eight weeks.—Has a splendid appetite, eating two pounds of pure beef pulp a day and enjoys it. Has stopped whisky and all medicine and is gaining rapidly.

End of four months.—Still improving and has gone to work; does four hours office work a day. Looks perfectly well. Only remaining symptom is a little cough in the morning.

End of six months.—Remains well, eats about four pounds of meat a day. Is the picture of health and working regularly.

Case 2.—Clergyman, age 33. Came to Colorado three years ago for asthma. Asthma somewhat better since coming out, but for a year past his general health has been steadily failing. Has bad cough and abundant muco-purulent expectoration. Is greatly emaciated and very weak. Has some fever afternoons; entire loss of appetite. Is very much discouraged and thinks he must give up his church and make a change.

Physical examination shows râles at both apices; slight dullness and hoarse respiration over same areas. Was advised to stay where he was and try Salisbury diet.

Partial result after nine weeks.—Has adhered strictly to the

diet for nine weeks, and kept at work all the time, though feeling weak. Appetite splendid. Is eating two and a half pounds of pulp a day, and enjoys every mouthful of it. No fever. General appearance much improved. Cough and expectoration *entirely gone*. No asthma for eight weeks.

Case 2.—Aged about 35. Came here on account of cough following the grippé a year before. In Colorado several months with only slight improvement. Physical examination shows dullness at right apex, and mucous râles all over upper lobe of left lung. Has a bad cough, and very abundant muco-purulent expectoration. Tubercle bacilli present. Is emaciated and weak, and discouraged. Eats no solid food, complete failure of appetite, living on broth and liquid diet. Fever every afternoon, constipation, skin and eyes sallow. Is very nervous and looks very sick.

Began Salisbury diet eating one pound of pulp a day.

Nine weeks later.—Appetite enormous; eats three and a half pounds of beef a day and is hungry all the time. Fever entirely gone, nervousness has ceased. Is much stronger. Sallowiness disappeared, face is bright and rosy. No constipation. Cough diminished to one-third. Expectoration only in the morning. General appearance greatly improved; looks like a well man, and wants to work. Can walk two miles without fatigue.

Case 3.—Aged about 40. Came to Colorado three and a half years ago with bad cough, and the symptoms of consumption. Did well for a year, then began to run down steadily. Had fever every day, entire loss of appetite. Cough very bad both day and night. Abundant expectoration containing much pus and many bacilli. Great loss of strength and flesh. Eats almost no solid food. Is under a good physician who orders him to live largely on meat food, but cannot swallow it. Is taking large quantities of whisky, also hypophosphates, charcoal and other remedies to tone up the system and aid digestion. In spite of it all is failing steadily.

Physical examination shows catarrhal phthisis of one apex. Fully believing he cannot recover he is arranging his affairs and getting ready to die.

Began Salisbury diet. Now, six months later, he looks like a perfectly well man. All symptoms have disappeared except some cough in the morning. Does not cough all day long. Has a magnificent appetite and lives wholly on meat. All fever has gone, he has gained in weight and feels strong and well. Is working out of doors and superintending a large business requiring much mental work. Gave up all whisky and medicine in about a month after beginning the diet. Needs nothing of the kind now.

These cases are none of them completed as yet, but the progress made in each shows how largely the treatment of phthisis depends upon proper nutritive and hygienic measures. Given a *means* of administering nitrogenous food and the battle is half won.

SOCIETY PROCEEDINGS.

American Electro-Therapeutic Association.

Second Annual Meeting, held in New York, October 4, 5 and 6, 1892.

WILLIAM J. MORTON, M.D., PREST.

SECOND DAY, OCTOBER 5—MORNING SESSION.

(Continued from page 312.)

I could not purchase two faradic coils that were of the same length, size of wire or resistance per foot, and no two rheotomes gave the same number of interruptions per second. The best that I had been able to obtain was one made by Flemming, of Philadelphia, which produced between 1,100 and 1,200 strokes to the minute—the usual speed being about 700 or 800.

Believing that an instrument could be devised which would produce interruptions of an electrical current vastly exceeding 1,200 per minute, and that such device would cause the desired result of curing pain by paralyzing terminal sensory nerve loops by such swift movements—in effect, a series of slight electric shocks or blows, I began to experiment.

It was necessary, however, first to be satisfied that similar blows, apart from any electrical connection whatsoever, might not do what was wanted; and rapid percussion with small hammers on elastic handles, which I had seen used by my friend Dr. Douglas Graham, the masseur, came into my mind. So the following test was made:

Upon the rim of a wheel ten inches in diameter, a series of small elastic hammers was arranged, each weighing a few grains, and attached to the end of an elastic shaft of whalebone three inches long. This wheel was made to revolve by a small electric motor, at such a speed that any spot upon the surface of the body might receive a succession of blows of ten grains weight apiece with a rapidity of 400 per second.

A few experiments with this machine proved that blows alone, no matter how rapidly given, were not sufficient to paralyze sensation or materially change the power of nerves of conductivity of impressions.

Therefore the idea was abandoned, and my own mechanical skill being insufficient to arrange any means of obtaining a series of electrical interruptions as rapid as my little hammer blows, I was forced to lay aside for a time my hopes of relieving pain with the induced current.

A little later, however, an instrument was brought to my notice which contained, among other improvements, the valuable ones of separate induction coils for motor and sensory effects, together with a device whereby the object which I had been working for, exceedingly rapid interruptions of current, was attained.

Both coils were accurately measured, tested for resistance, and so marked that, by carefully using a graduated scale attached, one could tell how much of either coil was in circuit, and how much resistance the current encountered before leaving the coil.

The rheotome was an elastic, thin metal riband, made fast at one end to a strong post, and at the other attached to a screw lever whose threads were so fine that a single revolution advanced the screw point one-fourth millimetre. Initial electric pressure was furnished by three Barney dry cells, which, although generally as unreliable as all other dry cells, proved, after many trials, the best for this purpose, as they developed a low initial pressure with considerable internal resistance and corresponding lack of tension.

At first, I found it difficult to count the vibrations of the riband; in fact, was unable to do so until it occurred to me that every note of a musical scale is produced by a certain number of vibrations per second, which had been accurately computed and was known. When the riband sounded the note C major, by referring to a table of scale sounds, I found that its speed was 540 per second, or 32,400 per minute, and that this speed, which was capable of being increased by stretching the riband tighter with the screw lever, could be run up to 50,000 per minute, then giving a note which corresponded closely to G sharp of the scale.

In order to be quite certain as to the varying speed of vibrations of the riband at different tensions, I sent to Leipzig and procured a pair of scale tuning forks, which give every note of the chromatic scale by means of sliding weights attached to the arms of the forks. Thus, when the sound emitted by the riband corresponds to that of the fork, and the latter marks a certain note, the number of vibrations in each are the same and may easily be computed.

A peculiar phenomenon that occurred during the progress of these experiments was that a high note was accompanied by an exacerbation of pain. That is to say, if the tuning fork registered a sound above D, harm rather than good was likely to follow the application; whereas, if it were kept steadily at C, the marked anæsthetic effects of the current were produced and maintained.

I can offer no other solution for this than that the effect of the succession of blows of greater rapidity was not transmitted far enough along the nerve trunks to which they were applied to be of much use. In other words, that their rapidity was so great that the result was rather that of a constant current than an interrupted one. I may also mention here that, unless the current was improperly strong, no muscle contraction followed, and that the fact of such contractions being produced has commonly served me as a guide in graduating current strength.

A careful and thorough course of clinical studies was at once instituted to determine the value of this novel idea, and after several months of testing in varied cases of annoying pain, I found that a combination of electricity with small rapidly repeated blows struck upon the surface by swift interruptions, was sufficient to arrest pain in every case where organic change in nerve or other tissue had not commenced, and after a varying number of applications, to cure it.

Arguing that if this rapidly interrupted faradic current possessed the power of relieving pain, it must do so by paralyzing the sensory fibres of the nerve leading to the painful part, and that if this suspension of sense could be maintained for a few minutes, or even less, it would result in its temporary loss in the part to which the current was applied, I began to experiment for production of anæsthesia.

The positive pole of the secondary coil of the instrument was placed in a basin of salt water, in which my left hand was also immersed, the negative pole pressed on the middle of the forearm and the current started. When a speed of 540 vibrations was reached, as indicated by the riband sounding the key of A major, a sensation of numbness was felt in one minute, and in three more was so complete that a sharp tap upon the hand, or a pin prick on any part of the immersed surface, could scarcely be felt.

The current withdrawn, sensation returned more quickly than it disappeared and in two minutes there was nothing about the limb to indicate that it had been experimented upon.

Similar tests were to different parts of my own body, and to others, with an unvarying result of local anæsthesia more or less complete, always, however, of short duration.

While these experiments were progressing, a medical friend, who had been watching them with some interest, brought to my rooms a patient with a felon on his left forefinger, to try if he could open it painlessly by the new method. Instead of immersing the finger in water and transmitting the current through that medium, I placed it in a metal tube partially filled with bits of soft sponge, wetted with salt water. The finger was carefully packed therewith, and the rheotome started with one-third the secondary coil in circuit.

The note reached was, as before, A major, answering to 540 vibrations per second. After one minute, the speed was increased to 720 a second, sounding the note of G sharp, and held at that point for two minutes longer.

The finger was then removed from the tube and examined for sense. To our disappointment a touch upon the felon was nearly, if not quite, as painful as before, and I made up my mind that our failure was due to the fact that interruptions were too rapid. So the finger was replaced in the tube and current started with the same resistance in coil as before and a vibratory note of C, and in three minutes surface anæsthesia had been produced sufficiently profound to allow the felon to be cut with no more sensation on the part of the patient than if it had belonged to another person.

The next test was a case of facial neuralgia, genuine *tic douloureux*, in the person of a physician's wife, who was such

a constant sufferer that she was quite willing to submit to any experiments that promised relief. In the height of her paroxysms the neuralgia pain was severe enough to swell the eyelids so she could not see, and to interfere with circulation to such an extent that parts of her forehead were almost black. As soon as the attack was past her face resumed its natural appearance, and she usually had no farther trouble for a month, the accesses corresponding to menstrual periods.

When she came to my rooms in May of this year, a trial application was made of galvanism with an initial pressure of twenty volts and a resistance of 6,000 ohms, continued for twenty minutes. No relief followed. Static electricity was next used, both with short currents from wood conductors, and fine sparks from metal points; also fruitlessly.

I then commenced the measured coil and high speed interrupter, placing the negative pole under the nape of the neck, and the positive, a flat sponge three inches square, upon the forehead, with low riband tone C major. In five minutes she said the pain was less; in ten it had disappeared; and after keeping electrodes *in situ* five minutes longer, the lady was left to enjoy an hour's sleep—the first in two days. From that time to the present—the middle of September—there have been two returns of the disease, both of which were relieved in the same way and by the same instrument. She thinks, and her husband coincides, that at last a remedy has been found for her trouble that is safe and sure.

I have not had any further opportunity to test the value of this current in surgery, my work being largely medical, but shall not neglect a chance to do so.

At the May meeting of the Providence Medical Association, in response to an invitation from its worthy president, I demonstrated this form of anæsthesia before the Fellows to the best of my ability, and was fairly successful. Several of the men present offered themselves for experimentation, and were able to notice distinctly the benumbing effect of the current upon those parts of their hands exposed to it. All this is yet in its infancy. The idea of extremely rapid, carefully measured and counted electrical interruptions of an induced current for relief pain and for local anæsthesia is now in the hands of thoroughly competent, practical mechanics, who may be trusted to bring out such improvements in instruments as may, at some time in the near future, make it as accessible to the profession at large as their collection of anæsthetic drugs are to-day.

I beg, therefore, to submit this contribution to the papers on medical electricity which are to be presented at this meeting of the Association as, to some extent, a bit of original work, and hope that I have succeeded in drawing the attention of my colleagues to what seems to me an important point, with sufficient skill and force to induce them to look it up still farther.

Discussion.

Mr. Carty said that the behavior of the current was quite apart from the speed of the interrupter, being dependent upon the quality of the core, its amount and disposition, the number of turns of wire, and various other factors, and, therefore, if at any time, failure should be met with, one should not be discouraged until it has been positively determined that the periodicity of the current is in exact accordance with the periodicity of the vibrations of the reed. Electricians have met with such obstacles in their work, and have carefully investigated these points. Although not a difficult procedure in a laboratory to determine whether or not the periodicity of the current and that of the reed is the same, he could not suggest any easy and practical method by which the medical man could apply such a test.

Dr. Goelet said that he had several primary coils which gave very different results with the same secondary coil placed over them, and he had believed this was due to the difference of the quality of iron in the core, as well as to the construction of the coil itself.

Dr. Kellogg said that very rapid interruptions of the current could be measured by tracings made on a very rapidly revolving cylinder.

Dr. Goelet said that all faradic currents varied in their physiological effect with the relation of the tension and volume of the current. If the current is derived from a fine wire coil, there is a high voltage but the volume is small; if from a coarse wire coil, the amperage is increased and the voltage diminished. With the current of greater amperage, greater muscular contraction is produced, provided the resistance is appropriate in the parts between the poles. That is in using a current with a diminished electromotive force, there must be a diminished resistance, in order that the volume of the current may be appreciable. The speaker said that his work was mostly gynecological, and that consequently both poles were ordinarily used on moist mucous surfaces where the resistance is very low; as a consequence, the effect of a coarse wire coil with its current of low voltage is very appreciable, whereas the current from the same coarse wire coil when applied to the surface of the body, where the resistance is much greater, would produce scarcely an appreciable effect.

Dr. Nunn said that he had been working in very much the same line as Dr. Hutchinson, and he was glad that the author had conceived the happy idea of using the ribbon for a rheotome. Some years ago, it would be remembered, Mortimer Granville made some experiments on the effect of rapid percussion upon sensation. The speaker had repeated these experiments, but had not obtained the same results. At the last meeting of the Association he had suggested that pain was in some way an alteration in the vibrations of a nerve, and according to this theory the results described in the paper would be explained by supposing that the vibrations corresponding to the note C major neutralize the disordered vibrations of the affected nerve. If this view be correct, the character of the current itself is not of much practical importance.

Mr. Carty said that he had just thought of any easy method of determining the relation of the periodicity of the current to that of the vibrator. When two plates connected with the terminals of a secondary coil are brought close together; they will attract each other, and you may actually have a percussion taking place between these two plates. This view suggests that the method of treatment under discussion may actually furnish a means of reaching the part mechanically, and of producing there an internal percussion. If a Dolbear telephone, which consists of one rigid and movable plate, be connected with these terminals, it should give out a certain note, and if this corresponds with that emitted by the vibrating reed it would prove that the periodicity of the current and of this reed was the same.

Dr. Nunn said that when a muscle contracts under the influence of a current there is undoubtedly a percussion produced, the degree depending upon the kind of current, and it is probable that such a percussion takes place throughout the cells of the body.

Dr. Herdman thought a purely mechanical explanation was sufficient to account for the action of Dr. Hutchinson's apparatus. He had seen in a recent periodical an account written by Dr. Morton of a vibrating machine devised for the relief of pain in the head, which was now being tried by Charcot. He had in his possession a book published fifteen or twenty years ago in which there is an elaborate discussion on the power of musical tones to relieve tones. Cer-

tain vibrations are produced through the auditory nerve upon the sensorium, and a certain tone may be selected which is most agreeable to the patient. Hence it would seem that we can simulate the normal vibration of a nerve by means of such an apparatus as that described in the paper.

Dr. Dickson said that he had very recently learned that an electrician in Toronto had sold three phonographs which were intended for use in the treatment of certain ear affections. It is to be remembered that electricity is only a form of motion through the molecules.

The president said that the description of the vibrating apparatus now being used by Charcot was first published in *Progrès Médical*, and he had not written the article in question, but had only alluded to it. The suggestion made by Mr. Carty was a most valuable one, for if it be found that the note emitted by the Dolbear telephone does not accord with that given out by the reed, we can make the periodicity of the two coincide by adjustment of the reed.

Dr. Hutchinson, in closing the discussion, said that it was unfortunate that medical men must deal with many uncertain and unknown factors. He doubted if we would ever know more than the simple clinical fact, that this method relieved pain; and while he had been greatly interested in the physical explanation which had been given, he thought it made but little difference about the number of vibrations, so long as the pain was relieved. If we only had to deal with certainties, we might then consider the apparatus apart from the human body, but this cannot be done in medical practice. In order to eliminate any possible effect from the influence of musical tones, he had had the instrument placed in his cellar, where the sound from it could not reach the patient's ear, but the result was just the same. By this method local anesthesia can be produced with the greatest ease, but so far the area of anesthesia is only under the electrode, and for a zone about one inch surrounding it.

SOME PHYSIOLOGICAL EXPERIMENTS WITH MAGNETS AT THE EDISON LABORATORY.

By Frederick Peterson, M.D., Chief of Clinic, Nervous Department, Vanderbilt Clinic, College of Physicians and Surgeons, New York, and A. E. Kennelly, Chief Electrician Edison Laboratory, Orange, N. J., Vice-President of American Institute of Electrical Engineers.

Magneto-therapy has not gained such wide-spread application as has electricity in medicine, nor has it won to any great extent the confidence of the medical profession, for its effects are even more occult and less easily demonstrable than, for instance, the trophic influences of galvanism in poliomyelitis and progressive muscular atrophy. At the same time, magneto-therapy has its adherents and earnest promulgators, to which any one will bear witness who has observed the transfer of singultus by a magnet from one girl to another in Charcot's dramatic realms at the Salpêtrière, or who has at the Poliklinik watched Benedikt carefully adjust a one-foot horse-shoe magnet to the hyperæsthetic spine of a hysterical girl. There are many lesser men than these who have implicit faith in that mysterious force, and there is no dearth of theories to explain the effects of magnetism upon the human organism. Prof. Benedikt has taught that erethetic forms of hysteria are better treated by the magnet than by electricity, hydrotherapy, or drugs. A magnet being applied to the sensitive vertebræ, without removal of the dress, the irritable patient soon becomes quiet, and even quasi-paralyzed. The magnet, therefore, "increases the resistance to conduction in the motor nerves." The muscles gradually relax, the respiration becomes sighing, consciousness slowly disappears; the resistance to conduction in motor nerves "could easily

become absolute." The two poles have different effects. Sometimes one pole to a hyperæsthetic ovary fails to relieve pain, whereas a change of the poles causes its speedy disappearance. According to him, the magnet must be employed with due caution, since patients may be injured by it.

The status of magneto-therapy in America may be inferred from some quotations from the third edition of Roberts Bartholow's "Medical Electricity," 1887. Under the caption of "Physiological Effects of Magnet Applications," he says: "We know that a current circulates in a magnet. If a powerful horse-shoe magnet is brought near to the skin, opposite electricities are attracted to the poles, and currents are induced. About the point of application, therefore, the skin will be acted on directly by the magnetic current, and by an induced current. The production of physiological effects, which can be recognized, is therefore, merely a question of the magnetic strength."

He then quotes Dr. Vansant as assuming the body to be dia-magnetic. "By applying north and south polarity to different parts, very extensive subjective impressions are experienced. They are of two classes—of heightened organic activity and the opposite condition."

He then adds: "That impressions of a very decided kind are produced by the application of strong magnets is evident in the experience of Drs. Proust and Ballet, who continued a course of investigation begun by Chareot at Salpêtrière." They ascertained that magnets could not be applied with impunity, for if applications were prolonged, pains were felt in the epigastrium and the thorax, making respiration painful. Digestion was disordered and brouillia brought on. These results were so uniform that there seemed to be no doubt of their genuineness in the minds of the investigators.

Under the heading, "Therapeutic Application of Magnets," Dr. Bartholow quotes Dr. Hammond as preferring a horse-shoe magnet, and advising that several of the same size be kept, so that by clamping them together more power can be obtained. The author adds: "Hammond insists on the necessity for the application of both poles in many cases, and therefore uses the horse-shoe magnet."

"Hammond has used magnets in nine cases of chorea, in two complete cures being produced in a few minutes."

"In two cases of hemiplegia with hemianæsthesia, Hammond had very surprising results from the application of horse-shoe magnets, the sensibility returning immediately, and in one the hemiplegia was recovered from in a few hours."

The magnets used by physicians are generally those of a horse-shoe shape, varying from a few inches to a foot in length, and are the so-called permanent magnets. They exert a traction force equivalent to several ounces, and sometimes to from one to three or four pounds.

Electro-magnets can be made to sustain 200 pounds to each square inch or 14 kilograms per square centimetre of active surface on either pole. That is to say, 28 kilos to the square of active surface on either pole if both poles are alike and share the load.

While rather skeptical as to the practical utility of the magnet in medicine, it occurred to us that if there was any truth whatever in the claims made by various distinguished authorities, if this interesting and undoubtedly powerful force had any effect at all upon living organic matter, we were in a position to demonstrate its physiological effects by means of magnets of enormous power placed at our disposal at the Edison Laboratory at Orange, N. J., through the kindness of Mr. Edison. Accordingly we made experiments which we detail below, and which we consider as conclusive, in that they have been made with magnets of a

strength possibly never before used for such purposes. The description of the magnet employed for preliminary experiments is as follows, (fig. 1):

It is of wrought iron throughout, and its principal dimensions are represented in the sketch in centimetres. Roughly speaking, it is about a foot and a half wide by two feet long and requires two men to lift it. The cross section of the core is 49 sq. cm. The vertical angle of the cones is 36°, and the diameter of their plane faces 0.75 cm. There are 2,728 turns of wire on each limb, making 5,456 in all, and the current employed in exciting it was approximately 4.5 ampères. The pole faces were 1.20 cm. apart, and it was between them that objects were placed for observation either with the naked eye or with the microscope. The intensity of the magnetic field between these poles was about 5,000 C.G.S. lines per square centimetre.¹

A drop of water placed on a glass slide in this field was visibly distorted in shape by the magnetic force.

The stage of the microscope was removed and wooden supports substituted. It was necessary to clamp the microscope down to the table to prevent its being drawn upward to the poles.

Nothing peculiar was noted in the effect upon iron in its finest powdered form, iron by hydrogen. It behaved just as iron filings would do, being strongly attracted. Iron by hydrogen placed in water was observed to be polarized by any ordinary magnet under the microscope.

Dry powdered hæmoglobin exposed to the strong magnetic field above described was not visibly affected by it. The iron it contains, however, is exceedingly minute (0.42 per cent.).

It was then thought possible that the iron in loose combination with fresh hæmoglobin in the blood-corpuscles might be affected. Several experiments were made with both human and frog's blood. The blood placed on slides and covered with a cover glass was subjected to the strongest magnetic influence obtainable, and failed to show the feeblest traces of polarization, movement, or vibration.

It must be borne in mind that we were using an electro-magnet which we magnetized and demagnetized at will. First one would make the observations, the other experimenter attending to the current; then they were repeated and verified by the other on our changing places.

Living ciliated epithelium from the pharynx of a frog was now in like manner subjected to the magnet, and its behavior watched under the microscope with a high-power objective, as the poles were magnetized and demagnetized by the making and breaking of the 120-volt current in the huge coils. The magnet had absolutely no effect on the delicate ciliary movement which kept on continuously, nor did it cause the slightest change or vibration in the cells themselves, suspended in the saline solution. After the magnetic observation, a mild continuous electric current of one to two milliampères C.S. was carried through the microscopic field containing the moving ciliated cells, and this also had no effect whatever upon the movement.

Another frog was now taken and curarized, fastened upon a pasteboard frog-plate, and the web of the foot stretched in the usual manner to show the circulation of the blood in the capillaries under high power. As before, the object to be observed was placed between the poles of our magnet and the microscope focussed upon it. The poles had to be separated somewhat farther to admit the large foot of the frog. With the clearance thus employed to allow of inserting the frog's foot the magnetic intensity was reduced from

¹ C.G.S., or "centimetre-gramme-second," is the unit of measurement. The earth's magnetic field, measured horizontally, for instance, is estimated to be 0.18 C.G.S. lines per sq. cm. near New York, consequently our magnetic field was 27,778 times that of the earth's horizontal component, that aligns the compass needle.

5,000 C. G. S. lines per square centimetre to 1,500 C. G. S. lines per sq. cm. Repeated observation by both of us failed to demonstrate the feeblest influence of the magnet upon the blood-cells or their movement in the vessels. At this point we determined to note the effect of the continuous current upon the circulation. A fine copper wire was placed upon one toe, and another wrapped in moistened filtering paper above the ankle. The current strength in these trials never exceeded two ma., and generally varied between one and two milliamperes.

Whenever the current was made the circulation in the foot under the microscope, which was about midway between the two electrodes (three centimetres apart) gradually grew sluggish and finally ceased, complete stasis being produced, the blood-vessels dilating. As soon as the current was cut off, gradually movement made itself felt in the stagnant capillaries, and becoming more and more lively, the circulation was in a few moments restored to its normal state. The effect was not due to the magnet, however, for it was observed with the current in the coils made or broken. This experiment was gone over frequently by each of us, so that the facts were fully verified.

It was now resolved to put Benedikt's statement to proof that magnetism "increases the resistance to conduction in motor nerves," thus causing paralysis. For this purpose a set of idle field magnets (Fig. 2) which converge into a cylinder two feet in diameter and seven inches deep was employed. In this cylinder a small and lively young dog was placed and kept for five hours, and subjected during all that time to the influence of a magnetic field whose intensity was from 1,000 to 2,000 C. G. S. lines to the square centimetre. Fig. 2 is taken with a boy inside of the cavity in which the dog was kept for five hours. The magnets were excited while the photograph was being taken with the boy in it, as is evidenced by the position of the bolt above, and by the bar of iron AB, which not only supports its own weight in this horizontal position when touching the pole-piece, but also supports the wrench at its outer extremity. The chain, too, is magnetically influenced. There was no effect upon the boy. A clearer idea of the power of this magnet may be obtained when I say that heavy bolts, chisels, and pieces of iron in the immediate neighborhood of this cylinder were drawn to it irresistibly and that it required considerable muscular effort to remove them. A heavy bolt placed slightly above the centre or axis of the cylinder remained for a moment suspended in the air, like Mahomet's coffin, so powerful was the opposing magnetic force upon it compared with gravitation.

The five hours' exposure to this influence had not the slightest visible effect upon the animal, which was rather livelier in his capers on being set free than before, owing to his joy at being liberated from the cage.

Our next experiments were directed to studying the influence of magnetic fields on the human brain. The type of dynamo employed for this purpose will be seen in the illustration (Fig. 3). The machine converts about seventy H. P. at full load. The armature and one journal were removed, leaving the space between the pole-pieces free. This will be best understood by reference to the figures. Fig. 4 gives a view of the pole-pieces into the cavity between which the head was to be inserted. This cavity is 35 cm. (14 inches) in diameter and 60 cm. deep. The weight of this electro-magnet is over 5,000 lbs., and the intensity of the magnetic field produced within the polar cavity after removal of the armature, though not uniform, may be estimated at a mean of 2,500 C. G. S. lines per sq. cm. A long board was placed upon the base plate leading into this polar cavity, and the subject experimented upon lay on his back upon the board, with his head and shoulders in the cavity between the poles.

and exposed thus to the full influence of the magnetic field. There would be comparatively feeble residual magnetism with no current in the coils. A switch so nearly silent in action as to be inaudible to the subject was arranged to close and open the exciting current circuit through the field coils. On closing the switch, nearly the full magnetic intensity would be active and permeating the head within practically one second (theoretically it takes an indefinitely long time to establish the full current and magnetism.) Similarly, on opening the switch, almost the whole intensity would disappear in about one second.

Five men (ourselves among the number) were subjected to trial. One case described will describe all.

The subject lay back upon the board and concentrated his attention upon his sensations. His right wrist was extended and was grasped by one observer, who took sphygmographic tracings of the pulse. A second observer placed a hand on his chest to observe any irregularity that might occur in respiration. A third observer in view of these two, but unseen by the subject of the experiment, opened and closed the switch that excited and relaxed the field, signalling to the first two observers as he did so. The strong magnetic influence was, therefore, turned on or off at will and without the knowledge of the subject. Several sphygmographic tracings were taken in each of the four subjects, and in one the knee-jerk was tested continuously.

The sphygmographic tracings taken continuously during the séance show no change in regularity, in spite of the making and breaking of the enormous magnetic influence during its registration. The respiration was not influenced in the least. The knee-jerk also presented absolutely no change. As to common sensations, there were none that could be attributed to the magnetic influence, and the subject could not discover when or whether the field had been excited. The testimony of all five subjects was alike. In one experiment the subject held a steel screw in his mouth and was then able to tell when the poles were magnetized or demagnetized, but only by the pulling of the screw to one side or another, not by any peculiar sensation or taste.

Our last series of experiments was in connection with reversed magnetism.

A large coil of stout cotton-covered copper wire, about 30 cm. high and 25 cm. internal diameter, composed of nearly 2,000 turns, and weighing about 70 kilos, was supported horizontally in such a manner that the head of the subject experimented upon could be freely introduced within the coil and subjected to the electro-magnetic field created there by passing a current through the wire. The resistance of the coil was 10 ohms, and its inductance 0.73 henry. An alternating electro-motive force of 1,200 volts, making 140 cycles or 280 alternations per second, was connected with this coil, the current supplied being 1.85 amperes. The magnetic field in the coil would thus be reversed 280 times per second. Each of the authors acted as subjects in the experiment, permitting the 1,200 volt alternating current to be made and broken frequently in the huge magnetic coil surrounding his head. No effect whatever was experienced. The coil itself hummed with the current, and a strip of sheet iron held in the cavity of the coil, but not touching it, vibrated perceptibly in the hand and gave a distinct loud sound, which was determined to be middle C of the musical scale by means of Helmholtz resonators.

(To be continued.)

An order has been issued by the German government that the Centigrade thermometer be exclusively used throughout the empire from the 1st of January next, instead of the Réaumur thermometer as heretofore.

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SATURDAY, MARCH 25, 1893.

THE ETIOLOGY OF CARCINOMA.

It is a very difficult task to give a résumé of the questions relating to the parasitic theory of carcinoma in the limits of an ordinary journal article. This is the case on account of the large amount of literature which has accumulated on the subject in a very short time—a literature to which each week brings important additions. Then too, the number of contending theories of the etiology of cancer, and the diversity of opinion among the various contributors, make it a difficult task to do them all justice. To be an impartial summary, however, a résumé must give a fair statement of each of the several views entertained by the different authorities. It must not be a one-sided statement of the case, no matter what may be the individual bias of the reviewer.

At the eighty-seventh annual meeting of the Medical Society of the State of New York, DR. ROSWELL PARK read a paper on "The Parasitic Theory of the Etiology of Carcinoma" (*New York Medical Journal*, March 4, 1893). In this paper the author saw fit to digress to the extent of severely criticising a statement made by the writer of an editorial on the etiology of carcinoma, in this JOURNAL of Feb. 3, 1893. In his criticism of this very loose statement, DR. PARK is justified; though it is difficult for us to see the exact necessity for the digression. For the justification of the author of that careless statement, however, let it be said that, by "inferior animals," he meant the "lower animals," as distinguished from the "higher animals," in the generally accepted sense. It is scarcely plausible that this writer could have fallen into the error of including among "inferior animals," all of those below man; for, with the volumes of the Transactions of the London Pathological Society before his eyes as he wrote the editorial, he certainly could not have overlooked the

various reports of cases of carcinoma in the dog, cat, monkey, and other "higher animals." So, in justice to this writer, let us criticise him for an inaccurate statement, rather than for a "lamentable lack of knowledge."

Since the distinguished author of the address above noted has seen fit to criticise, he will, no doubt, assent to a critical analysis of certain features of his own contribution. As stated above, we realize the difficulties in making a fair review of the question under discussion. But DR. PARK seems to be decidedly biased toward the protozoan theory of the etiology of cancer, and he has not given a just statement of the work of those authorities who array themselves against the cancer parasite, as at present identified. A paper in which five pages are devoted to the work of the authorities who favor the parasitic theory of carcinoma, and in which the opposing views are condensed in a half column, cannot be considered a liberal summary; for, up to the present time, not an observation has been made on the cancer parasite but that it has been offset by a counter contribution, and, in each case, by men of equal reputation as investigators.

DR. PARK refers to the time honored work of VIRCHOW on certain carcinoma cell inclusions, and in this connection makes the statement that, "their true nature was not made out till 1888, when they were identified as belonging to the *sporozoa* (italics ours) although he himself (VIRCHOW) later suggested the possibility of their being psorosperms." This is an astonishing piece of information! and one, we believe, which would surprise the great VIRCHOW, himself. If these bodies so long since accurately described are *sporozoa*, then indeed, there can be but one view to take of the cancer parasite question—and that is the one-sided view of DR. PARK. But many pathologists of note will dissent from this statement. In fact, even in one of his latest utterances on this point, VIRCHOW (*Virchow's Archiv.*, Bd. 127, Heft 1, p. 188) says, with reference to the psorospermic nature of the inclusions described by him in carcinoma and molluscum contagiosum, that he must still adhere to the attitude which he assumed in 1865, when he could not convince himself of the parasitic origin of these objects. In his original paper, VIRCHOW described very accurately the development of the cancer cell inclusions, which have presented themselves to the view of every careful observer, and he considered them the result of an endogenous cell formation. The larger inclusions were regarded as hypertrophied nuclei which had become the seat of vacuoles, and whose nucleoli had become homogenous. The limiting membrane surrounding the altered cell and nuclear contents, was the original cell membrane. Such were the views of VIRCHOW thus early expressed, and, in the opinion of many

careful investigators, these observations are as true to-day as they were when first made. As NOEGGERATH (*Beiträge zur Struktur und Entwicklung des Carcinoms*, Wiesbaden, 1892) justly says, had not this classical description of VIRCHOW fallen into oblivion, much needless confusion on the subject of the carcinoma organism might have been avoided.

Our author gives the conclusions of WICKHAM, and refers to the work of the French investigators in the same line, without a mention of the investigators who have effectually disproved all of this work. As a matter of fact, the opinions of WICKHAM and his confrères have been so vigorously attacked by KIENER, STEINHAUS, RIBBERT, NOEGGERATH, and others, that the question of the parasitic nature of the larger cell inclusions should be forever laid aside. It has only remained for NOEGGERATH (*loc. cit.*) to put the quietus to this discussion, which he has done by directing attention to the error of WICKHAM and others, in disregarding the original invagination of one epithelial cell by its neighbor as the starting point of the inclusions. By his beautiful micro-technical studies NOEGGERATH has followed every stage in the development of the so-called "parasites," and no impartial student can doubt the correctness of his conclusions.

We are greatly surprised to note that the communication of JACKSON CLARK before the London Pathological Society (*British Medical Journal*, Dec. 24, 1892, p. 1387), is considered by DR. PARK at considerable length. That such an erratic and unscientific contribution as CLARK's should be entertained for a moment, is most unfortunate. Will any one read the five steps in the development of CLARK's psorosperms (so carefully quoted by our reviewer), and then tell us the life history of these organisms is still unknown? Here is a statement taken from this same communication!—"The large cells (of epitheliomata) at a certain period showed an extension of the nuclear net-work which spread outwards, generally as a delicate but sometimes as a coarse reticulum which filled the whole cell, and this now split up into innumerable delicate amaba, which at first were devoid of a nucleus." (italics ours).

In a subsequent paper CLARK (*British Medical Journal*, Jan. 21, 1893, p. 115) describes psorosperms in a case of sarcoma, and here states that these organisms not only caused squamous epitheliomata, but also cancers of the most varied kinds, and some adenomata and cysts of the breast. He found, in some hundreds of sections of many cancers, parasites in every field of the highest powers of the microscope! Again, in another report, this same author (*British Medical Journal*, Jan. 21, 1893, p. 119) is responsible for the statement that, "more than two-thirds of the weight of a round-celled sarcoma of the testicle was accounted for by the psorosperms present." Is it any wonder that this work of CLARK has been criti-

cised by all of his own associates? Every student who has given this subject the least attention will agree with RUFFER, (*British Medical Journal*, Feb. 4, 1893) who, in a letter, says, "There are so many other statements in Mr. CLARK's paper which call for comment, and which are of so extraordinary a nature that one may well doubt whether they were made in sober earnest." And still the work of CLARK has received more attention at the hands of DR. PARK, than all the evidence contrary to the parasitic theory of cancer.

The "elaborate contribution" of PODWYSZOZKI and SAWTSCHENKO has not been so complacently received, as one is led to infer from the review under consideration. Not only FOÀ, but a number of other investigators have attacked this work from various attitudes, with the effect of greatly diminishing its importance. If anything more were needed to throw distrust on this contribution, the subsequent publication of SAWTSCHENKO (*Cent. f. Bakteriologie*, XII Band, No. 1, 1892), would effect the purpose; for, in this place, SAWTSCHENKO describes and figures an entirely different set of "parasites," the while endeavoring to reconcile those appearances with those described in the conjoined contribution. If we must regard all of the objects described by these two authors as sporozoa, we can accept the startling assertions of CLARK with better grace.

The careful scientific investigations of SOUDAKEWITSCH, FOÀ, and RUFFER and WALKER, receive scant mention in DR. PARK's paper. After having carefully followed the work on this subject for two years, not only in the literature, but also in the laboratory, we are inclined to look upon the last three contributions as the most important additions to our knowledge of the carcinoma organism. These three papers are mentioned in common, because the authors describe the same bodies as sporozoa, quite independently of each other. They all employed precise micro-technical methods, and entirely disregard the larger inclusions of the French school. They could not calculate their sporozoa by weight, as CLARK has done, nor did they find them in every tumor examined. On the contrary, they found their "parasites" only sparingly present, and only in certain specimens of cancer. FOÀ, for instance, examined more than seventy cancers, and found objects which he could regard as parasites with certainty only in four cases. RUFFER and WALKER tell us of examining hundreds of sections before finding the characteristic objects. But even this work, with all its evidences of accuracy, cannot be accepted without a challenge. For instance, MULLER (*Virchow's Archiv*, Bd. 130, Heft 3, 1892), in a careful study of the cellular processes in tumors, directs attention to the process of indirect fragmentation of the nucleus, followed by endogenous cell formation, in dropsical car-

cinoma cells ("physaliden"). MÜLLER claims to have observed, in these studies, cell inclusions which corresponded in every way to RUFFER and WALKER'S parasites, and he maintains that the "sporozoa" of these authors are only the products of an irregular division process in an altered epithelial cell. Since this criticism applies to the work of RUFFER and WALKER, it must also include many of the "parasites" of SOUDAKEWITSCH, and of FOÀ, since these investigators have, in part at least, described the same objects. The author is evidently not patriotically inclined, for we notice that he mentions the work of but one American investigator. Perhaps this is because the gentlemen on this side of the water who have studied this question have not embraced the evidence favoring the sporozoan parasite of carcinoma with sufficient enthusiasm. Nevertheless, the work of WELSH, MACALLUM, FLEXNER, and others, has been of a character which the recent conservative opinions of a number of prominent foreign investigators corroborated, and their work should be credited in a résumé of this subject.

Much more evidence of a character contrary to the enticing protozoan theory of the etiology of carcinoma as at present supported, might be adduced, but we believe enough has been said to correct the erroneous impression left after a reading of DR. PARK'S paper.

ARTIFICIAL RIPENING OF IMMATURE CATARACTS.

It has long been one of the tenets of ophthalmology that no senile cataract should be extracted until it is ripe; that is, until the degenerative process that begins either in the nucleus or the cortex of the lens, or in both together, has extended to its whole substance, thus loosening it from the capsule, and allowing its easy and complete extrusion when the capsule is divided.

To follow this rule entails upon many subjects of cataract an enforced period of disability from the time the opacity reaches a degree sufficient to incapacitate them for work, to the time when the lens is fit to be operated upon.

Inasmuch as this period of growth from incipency to full maturity is from one to three years or more, the delay, to many, is a serious matter, and especially so if the subject is a person upon whose labors others as well as himself are dependent.

Any method, therefore, of operation or treatment, that has for its object the shortening of this period, is deserving of careful consideration.

Of late, some operators, among them SCHWEIGER, maintain that the lens may be extracted safely after the sixtieth year, even if it is in part unclouded. Others again operate on immature cataracts that show a decided slowness in ripening, and resort to

subsequent needling operation to clear the pupil of any cortical material that may remain.

The results of such operations are, however, rather uncertain. The tenacious cortical substance that is left in the anterior chamber forms an excellent nidus for the development of any infective germs that unnoticed may have slipped past the surgeon's guard; or it may swell rapidly and induce an iritis, and particles of it may so clog the wound as to prevent rapid and complete union. To prevent these complications McKEOWN, WICKERCIEWICZ, PANAS, DE WECKER and others, practice washing out the tenacious cortical matter from the anterior chamber with sterilized water or some non-irritating antiseptic solution, using a small suitably constructed syringe for the purpose, and claim that by this means many immature cataracts can be safely and successfully removed. However, in the hands of many, this practice has seemed to result so disastrously that it has not, as yet, received many adherents.

FÖRSTER was the first to make use of a procedure for artificially ripening the immature cataract, aside from the operation of a preliminary iridectomy, which had previously been known to have some influence in bringing about a more rapid development of a cataract.

His method consists in rubbing the cornea against the lens with a small blunt instrument, such as a DAVID'S scoop, after first making an iridectomy. As a result of this manipulation, although the capsule is not supposed to be ruptured, the lens fibres undergo a rapid degeneration, and in the course of from one to three weeks the lens becomes completely opaque and in a suitable condition for removal.

It is essential that the cornea be not rubbed too violently, and that the iris be not injured between the cornea and the lens. No little experience is required to determine the exact amount of force to be used in the trituration of the lens according to FÖRSTER'S method. If too little is done nothing is accomplished, while if the manipulation is too vigorous, either the capsule is ruptured or the suspensory ligament is injured, so that at the time of the extraction the operation will be complicated by an escape of vitreous.

MCHARDY says "that he has noticed in extracting cataracts that he has artificially ripened by trituration of the cortex, that there had been a far greater percentage of cases with protrusion of vitreous humor than he has been familiar with when dealing with cataracts that have not been artificially ripened."

Others who have used this method, testify to the difficulty of correctly estimating the amount of force that can safely be used, and to the danger of exciting inflammation of the iris.

To avoid this, BETTMANN, in 1885, practiced intra-ocular massage of the lens, which he calls "direct trituration."

In this operation an iridectomy is first done, although this may be dispensed with, after which there is introduced into the anterior chamber, through the corneal wound, a small spatula, with which the surface of the lens is gently rubbed. The result is apparent in a few days as an increased opacity, and in the course of a few weeks at the farthest, the cataract is usually ready for extraction. This method has distinct advantages over that of FÖRSTER, in that it is more accurate, is not so likely to wound the iris, and is more certain in its action.

The application being made directly to the lens, one can more accurately gauge the force that is used, and there is, in consequence, less danger of rupturing the suspensory ligament.

Of the twenty cases thus far reported by BETTMANN, there was, in the subsequent operation of extraction, an escape of vitreous in only two. In five of his cases, the trituration was done without a preliminary iridectomy, with results as favorable as when a piece of the iris was removed.

He found that the soft cortical cataracts mature more rapidly than those having a hard sclerosed nucleus, while cataracts secondary to myopia or other intra-ocular affections are not considered amenable to this form of treatment.

This method is certainly deserving of an extensive trial in order to determine its complete value.

A NEW AND RAPID METHOD OF REMOVING THE UTERUS.—At a recent meeting of the Kansas City Academy of Medicine, Dr. Emory Lanphear presented a number of fibroid tumors, sarcomata, etc., removed by a new method of abdominal hysterectomy. The abdomen and vagina having been carefully sterilized, he makes an incision in the median line terminating as close to the pubes as possible, draws the uterus with one tube and ovary to one side and applies a clamp to the broad ligament; a strong ligature is passed a half inch from this, including the blood vessels, and tied; the intervening tissue is then cut with scissors. Upon the opposite side the same procedure is carried out. When done, the uterus (hitherto held down by the broad ligament) can be lifted up into the wound and separation from bladder and rectum easily accomplished; these incisions, before and behind, are carried into the vagina, when a Kelly's or Polk's clamp is introduced through the vagina as close as possible to the uterus, its points reaching the ligature already tied in the broad ligament. As soon as properly applied it is closed, and its fellow clamp inserted upon the other side, when the uterus is quickly cut away with curved scissors. The pelvis is irrigated, and the abdominal wound closed and drainage made through the vagina as in cases of vaginal hysterectomy. The clamps are removed in forty-eight hours. The operation can be made in twenty-five to thirty minutes, being much easier than even a vaginal hysterectomy with clamps. By the rapidity allowed and by the good drainage secured, Dr. Lanphear thinks this operation can be done almost as safely as an ovariectomy—certainly as safely as a vaginal hysterectomy; and it is much preferable to any method which leaves a pedicle or stump behind. He finds it is not necessary to unite the bladder to the rectum as union takes place just as quickly without sutures as with them.

ASSOCIATION NEWS.

AMERICAN MEDICAL ASSOCIATION.

The forty-fourth annual session will be held in Milwaukee, Wis., on Tuesday, Wednesday, Thursday, and Friday, June 6, 7, 8, and 9, commencing on Tuesday, at 11 A.M.

"The delegates shall receive their appointment from permanently organized State Medical Societies, and such County and District Medical Societies as are recognized in their respective State societies, and from the medical department of the Army and Navy, and the marine-hospital service of the United States.

"Each State, County, and District Medical Society entitled to representation shall have the privilege of sending to the Association one delegate for every ten of its regular resident members, and one for every additional fraction of more than half that number: *Provided*, however, that the number of delegates for any particular State, territory, county, city, or town shall not exceed the ratio of one in ten of the resident physicians who may have signed the Code of the Association."

Members by application.—Members by application shall consist of such members of the State, County, and District Medical Societies entitled to representation in this Association as shall make application in writing to the Treasurer, and accompany said application with a certificate of good standing, signed by the President and Secretary of the Society of which they are members, and the amount of the annual membership fee, five dollars. They shall have their names upon the roll, and have all the rights and privileges accorded to permanent members, and shall retain their membership upon the same terms.

The following resolution was adopted at the Session of 1888:—

That in future, each delegate or permanent member shall, when he registers, also record the name of the Section, if any, that he will attend, and in which he will cast his vote for Section officers.

Secretaries of Medical Societies, as above designated, are earnestly requested to forward, at once, lists of their delegates.

Also, that the permanent Secretary may be enabled to erase from the roll the names of those who have forfeited their membership, the Secretaries are, by special resolution, requested to send him, annually, a corrected list of the membership of their respective societies.

AMENDMENTS TO THE CONSTITUTION AND BY-LAWS.

Offered by Dr. C. A. L. Reed: Amend Article II, Section 1, of the regulations, by inserting after the word United States, the words "The Dominion of Canada, Labrador, and Newfoundland," and that such other changes be made in the phraseology of the Regulations and By-laws as to make the same con-

form to this contemplated enlarged jurisdiction of the Association.

By Dr. I. N. Quimby: "That Thursday morning's general session be omitted, and the time be devoted to Sectional work."

By Drs. John Morris and J. G. Kiernan: Amend Section 7 of the Constitution, entitled, "The General Business Committee," as follows: "It shall be the future duty of the General Business Committee to make and present the nominations for the officers of the Association and its Standing Committees, and recommend the time and place for the meeting of the Association."

"The General Business Committee of the Association shall perform all duties hitherto performed by the Committee on Nominations, which is hereby abolished. All sections of the Constitution and By-laws, or parts thereof inconsistent with the amendment, are hereby repealed."

By Dr. F. F. Dow: Amendment to the Constitution, to be known as Article VIII, entitled "The Code of Ethics:"

"The relations of the physician to the patient, to the public, and to the profession require that he shall be of good moral character, and in his personal and professional conduct without reproach; that he shall avoid pretense and notoriety; that he shall properly qualify himself for professional duty by broad and liberal studies in letters, sciences, and arts; that he shall employ reasonable and reputable methods of practice; that he shall respect the laws of the State; that he shall encourage efficient means for the enlightenment of public opinion regarding the responsibilities of medical men and the relation of medical men and the relation of the citizen to public health, for the cultivation of medical education, for the promotion of the interests, usefulness, and honor of the profession, for the emulation, concerted action, and friendly intercourse among those engaged in it.

"Substituting the Roman numerals IX for VIII.

"All Articles, By-laws, and Codes inconsistent with this amendment are hereby repealed."

By Dr. J. B. Rauch: "That on and after July 1, 1897, no one will be admitted to membership in the American Medical Association who has not studied medicine for four years, and attended four annual courses of lectures of at least six months' duration.

By Dr. F. F. Dow: Amend By-law No. XI, relating to the Judicial Council. The second clause of paragraph three shall be amended to read as follows: "The decisions of said Council on all matters referred to it by the Association shall be reported at the earliest practicable moment, and shall be final unless revised by the Association."

By Dr. A. B. Hosmer: WHEREAS, The constantly increasing number of papers on general surgical subjects presented each year at the Surgical Section of this Association, the

reading and even restricted discussion of which prohibit the introduction of any considerable number of papers on strictly orthopaedic subjects, which might not prove of universal interest to the general surgeon; and

"WHEREAS, There are already a sufficient and rapidly increasing number of members of the Surgical Section of this Association specially interested in this branch of surgery to warrant it; therefore be it

Resolved, To amend Article II of the By-laws by the addition, under the heading Sections and after 12. Physiology and Dietetics, the following: 13 Orthopaedic Surgery."

ADDRESSES.

On General Medicine, by Dr. Hobart A. Hare, Philadelphia, Pa.

On General Surgery, by Dr. Henry H. Mudd, St. Louis, Mo.

On State Medicine, by Dr. Walter Wyman, Washington, D. C.

Committee of Arrangements, Dr. U. O. B. Wingate, 560-564 Jefferson St., Milwaukee, Wis.

WILLIAM B. ATKINSON, M.D.

Permanent Secretary.

Philadelphia, 1400 Pine St., S. W. cor. Broad.

SECTIONS.

"The Chairman of each Section shall prepare an address on the recent advancements in the branches belonging to his Section, including suggestions in regard to improvements in methods of work, and present the same to the Section over which he presides on the first day of its annual meeting. The reading of such address not to occupy more than forty minutes. . . ."—*By-Laws*.

Practice of Medicine.—Dr. Chas. G. Stockton, Chairman, 436 Franklin St., Buffalo, N. Y.; Dr. G. W. Webster, Secretary, 70 State St., Chicago, Ill.

Obstetrics and Diseases of Women.—Dr. J. Milton Duff, Chairman, 2005 Carson St., Pittsburgh, Pa.; Dr. H. B. Ward, Secretary, 209 East Seventh St., Topeka, Kan.

Surgery and Anatomy.—Dr. James T. Jelks, Chairman, Opposite Arlington House, Hot Springs, Ark.; Dr. Liston H. Montgomery, Secretary, 70 State St., Chicago, Ill.

State Medicine.—Dr. Chas. A. Lindsley, Chairman, 15 Elm St., New Haven, Conn.; Dr. S. P. Duffield, Secretary, Municipal Court Building, Detroit, Mich.

Ophthalmology.—Dr. S. D. Risley, Chairman, 1722 Walnut St., Philadelphia, Pa.; Dr. Henry Gradle, Secretary, 65 East Randolph St., Chicago, Ill.

Laryngology and Otology.—Dr. E. L. Shurley, Chairman, 25 Washington Ave., Detroit, Mich.; Dr. J. E. Boylan, Secretary, 113 Broadway, Cincinnati Ohio.

Diseases of Children.—Dr. C. G. Jennings, Chairman, 457 Jefferson Ave., Detroit, Mich.; Dr. Frank S. Parsons, Secretary, Northampton, Mass.

Oral and Dental Surgery.—Dr. A. E. Baldwin, Chairman, 828 West Adams St., Chicago, Ill.; Dr. E. S. Talbot, Secretary, 125 State St., Chicago, Ill.

Neurology and Medical Jurisprudence.—Dr. Charles K. Mills, Chairman, 1907 Chestnut St., Philadelphia, Pa.; Dr. J. G. Kiernan, Secretary, 834 Opera House Block, Chicago, Ill.

Dermatology and Saphiography.—Dr. Louis A. Duhring, Chairman, 1411 Spruce St., Philadelphia, Pa.; Dr. W. H. Dunlap, Secretary, 408 Fayette St., Syracuse, N. Y.

Materia Medica and Pharmacy.—Dr. Frank Woodbury, Chairman, 218 South Sixteenth St., Philadelphia, Pa.; Dr. F. E. Stewart, Secretary, Glen Springs Sanitarium, Watkins, N. Y.

Physiology and Dietetics.—Dr. C. H. A. Kleinschmidt, Chairman, 3045 N. St., N. W., Washington, D. C.; Dr. Ephraim Cutter, Secretary, 120 Broadway, New York, N. Y.

"A member desiring to read a paper before a Section should forward the paper, or its title and length

(not to exceed twenty minutes in reading), to the Chairman of the appropriate Section at least one month before the meeting."—*By-Laws*.

OPHTHALMIC SECTION.

The time for the annual meeting of the American Medical Association (June 6 to 9, at Milwaukee, Wis.) is so near at hand that all members who wish to contribute papers must send the title of their paper to the Secretary before April 25, in order to have them appear in the general programme, and in order to make arrangements for discussion. It is also urgently requested that brief abstracts be furnished not later than May 15 in the form in which authors wish them to appear in the preliminary report of the meeting. The announced communications, as well as the names of those who have promised to attend, assure the success of the next meeting. In view of the historical interest which the Columbian celebration lends to the meeting, it is highly desirable that American Ophthalmology should be well represented by the names and presence of those who have contributed to its present advanced position.

S. D. RISLEY, M.D., Chairman,
1722 Walnut St., Philadelphia.

H. GRADLE, M.D., Secretary,
65 Randolph St., Chicago.

DOMESTIC CORRESPONDENCE.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Sir:—Belonging to those who are opposed to any revision of the Code, I send you the following remarks addressed to the Chicago Practitioner's Club at a recent meeting when this matter was discussed:

In this country, where liberty is confounded with unbridled license, where justice is so often an article of merchandise, where statesmanship is supplanted by political trickery, where science is used as a cloak to cover ignorance, where, in short, quackery, humbuggery and criminality flourish like vegetation in the tropics, in such a land there is need for a standard around which honorable men gather and by the strength of union elevate their calling to a higher plane, for their own personal good and for the benefit of the generation to follow. For this reason, gentlemen, I am a firm believer first, last and all the time in that grand guidon of the medical profession, the Code of Ethics of the American Medical Association; a document as clear and concise, as comprehensive and adequate as the Declaration of Independence or the Constitution of the United States. Read it as often as you can—the oftener the better—paragraph after paragraph, page after page, and you will be better men, better physicians, better able to cope with the problems and difficulties that daily beset you in your chosen calling.

Simple in its precepts, just in its teachings, correct in its doctrines, and grand in its conception; I would it were required that every candidate for the degree of Doctor of Medicine commit this Code to memory in lieu of presenting a graduating thesis, a custom as absurd as it is useless.

Antagonism is the price of existence, and the nearer you approach the ideal the more bitter the opposition. Hence,

it is not surprising that of late years there has been a determined fight against the Code by a class of men who, at least in their own opinion, rank high above the common herd, as they are pleased to call us. According to these distinguished gentlemen, our Code is useless, old fashioned rubbish, which cannot be swept away any too soon, as gentlemen require no code to govern their conduct. Carry this line of argument a little further and to be consistent you will have to abolish every code, whether it be that of morality, religion or law, and allow each individual to decide for himself what is right and what is wrong.

However, do not for one moment delude yourselves into thinking that these medical anarchists do not believe in any code. They are the most fanatical worshippers of their chosen code—the code of the almighty dollar. They would sell their birthrights for a mess of pottage and prostitute their professional honor for a paltry fee. Upon the prospect of a consultation fee you will find them ever willing to meet homeopaths, eclectics, abortionists and quacks of all descriptions in consultation. In consultations with physicians, you will find them always ready to agree with you in the consulting room, but to the family, express in a gentle and tender manner their misgivings of your management of the case, and perchance in a little while you may find them in charge of the patient, particularly if you are a young physician without influence or friends. No opportunity is missed by them to see their names in the daily prints, always anxious to be interviewed on any subject, the source of considerable revenue to many an impecunious newspaper reporter. You may look for their names in testimonials endorsing anything under the sun, from salad dressings to Ypsilante underwear, anything, everything, provided only the testimonial be given wide circulation, especially in the daily press, with all the titles in full.

These gentlemen have a profound contempt for the Code of Ethics—they want none of it, and with good reason—no criminal ever admired the law that hung him.

Gentlemen, the calling of a physician is an arduous one at best, trials and tribulations abound on every side—joys and pleasures are few and far between—but is the power of each and every one of us by following our guidon, the Code of Ethics, and maintaining its principles to the end, to have the happy consciousness of a life well spent? I know of no greater eulogy to the departed physician, than is comprised in these few words: "He lived up to the Code."

DR. E. J. DOERING.

BOOK REVIEWS.

THE ANATOMY AND SURGICAL TREATMENT OF HERNIA. By HENRY O. MARCY, A.M., M.D., LL.D., of Boston. President of the American Medical Association, etc. With sixty-six full page lithographs and litographic plates, including eight colored plates from Bougery, and thirty-seven illustrations in the text. New York. D. Appleton & Company, 1892.

The members of the American Medical Association who were fortunate enough to be present at the last meeting will remember with what pleasure they were entertained by Dr. Marcy in listening to his lecture on hernia, and which was so well illustrated by large illuminated plates shown on canvass. They now have an opportunity of possessing a copy of Dr. Marcy's great work on this subject, the like of which we can truly say has not before been placed within the reach of American practitioners of surgery.

In opening this portly tome, after the title page the first thing that strikes our attention is the author's dedication and beautiful tribute to Sir Joseph Lister. Following this are his eulogiums of Sir Astley Cooper, whose work in this

line is of itself sufficient to cause his name to be written among the numerous. With discriminating justice we find the author giving full and due credit to all of the great masters who have enriched our literature by a record of their work in this relation.

In a realization that modern surgical methods were adapted to an improved treatment of hernia we find the author's concept of the present volume.

Chapter I is devoted to a definition and classification of hernia, its frequency as to age, sex, occupation, and illustration tables, other chapters taking up the anatomy of the parts involved, the causes and conditions, including the importance of diagnostic differentiation of the several varieties in order to intelligent treatment. After which we find given a description of instrumental supports, and conditions demanding operative interference. The details of various surgical procedures are given with great clearness.

The reader will find complete chapters on every seemingly possible variety of hernia, in which are found beautifully illustrated the anatomical conditions that may be anticipated, with the most approved method of treatment.

Concluding the work of twenty-seven chapters, with a masterly dissertation on the operative measures advised for the cure of hernia, and the advantages of the buried tendon suture, in which he shows it is possible to reconstruct the obliquity of the inguinal canal, and giving a comparison of the different methods to be adopted for this purpose, including those recommended by Schiede, Macewen, Bassini and the author. Statistics are given to show the safety of operations and resultant cures.

The mechanical work of the publishers is a superb illustration of the best in the art of bookmaking.

DISEASES OF THE EYE. A HAND-BOOK OF OPHTHALMIC PRACTICE FOR STUDENTS AND PRACTITIONERS. By G. E. DE SCHWEINITZ, M.D., Professor of Diseases of the Eye in the Philadelphia Polyclinic, etc. 8vo., pp. 641. Two hundred and sixteen illustrations and two chromo-lithographic plates. Philadelphia: W. B. Saunders.

The work of Dr De Schweinitz is an able presentation, in clear and concise form, of the principles of ophthalmology, with especial emphasis laid upon the practical parts of the subject. The systematic directions for examining cases, the judicious classification of the various diseases, the tabular grouping of symptoms, the excellent discussion of the indications for operation, the explicit directions for the preparation of the patient, the instruments, etc., and the careful description of the operation itself, all go to make up an excellent hand-book of practice.

The author has been assisted by Dr. James Wallace, of Philadelphia, who contributes the chapter on general optical principles, including accommodation and convergence; the chapter on normal and abnormal refraction; the section treating of the theory and practice of the ophthalmoscope, as well as that portion of the work that relates to the mechanism of diplopia, the rotation of the eyeball and the causes of convergent and divergent squint. This is certainly very clearly presented, and will enable the student to obtain a better grasp of this intricate part of the subject.

Retinoscopy, one of the most valuable objective aids to a determination of errors of refraction, is treated of by Dr. Edward Jackson, Professor of Ophthalmology in the Philadelphia Polyclinic. The principle of this test is very clearly explained; but we regret that the author has confined the description of the technique, so far as it applies to the determination of the exact degree of an error, to his own individual method, which in the experience of many has not been found the most practicable.

The method of placing suitable glasses in the trial frame until the point of turning of the shadow is reached has, we

surmise, gained a much larger acceptance than the excellent method of Dr. Jackson, and is, in our opinion, easier of application.

The book is excellently printed, and the numerous illustrations are well selected and well executed.

We can heartily recommend this work, and predict that it will make many friends among students and practitioners, as well as among those especially interested in ophthalmic science and practice.

HANDBOOK OF MATERIA MEDICA, PHARMACY AND THERAPEUTICS, including the Physiological Action of Drugs, the special Therapeutics of Disease, Official and Practical Pharmacy, and Minute Directions for Prescription Writing. By SAMUEL O. L. POTTER, A.M., M.D., M.R.C.P., Lond., Professor of the Theory and Practice of Medicine in the Cooper Medical College of San Francisco, etc. Fourth edition, revised. Philadelphia: P. Blakiston, Son & Co. 1893. \$4.00.

Out of the far West, from the Golden Gate, comes a literary treasure. The first impression of this book, a wholesome and pleasing impression, is gained from the gracefully worded inscription. It does not often happen that a scientific writer caps the climax of his labors by dedicating a book to his devoted wife. We construe this happy act as an index of the sterling worth of his character. He is not too timorous to stand proudly forth as a conspicuous and complete answer to that widely discussed question which has agitated society and filled a large place in general literature of late: "Is marriage a failure?" One naturally enters upon the study of his book with such a sentiment of sympathetic admiration of the writer as imparts an enthusiasm for his work. Long life to them both!

The honesty of the author is manifest on every hand, and his style is fresh and interesting. He presents as concisely as possible the essentials of practical materia medica and therapeutics, with the subjects arranged on a modified alphabetical plan that allows of the grouping together of agents closely related physiologically and therapeutically.

There is a section on pharmacy, an acquaintance with which will enable practitioners to be less dependent on the counter-prescribing, receipt-renewing, doctor-discrediting druggists, and to retain for their own benefit the legitimate results of their skill by dispensing their own remedies.

The article on prescription writing is a thoroughly admirable one. No doctor should essay to write prescriptions to be seen by any one beside himself, without such instructions as are given here. It is almost enough to make one beside himself to see the so-called prescriptions of many a doctor who is ignorant in this art. Such physicians are sensibly "advised to write their prescriptions wholly in English if they cannot write them in decent Latin."

There is a 10-page list of Latin words, including the most common prescription verbs, participles, prepositions, and the nominative and genitive case endings of the different declensions. A comparative table of dangerous abbreviations is also given.

The author has taken great pains to give the derivation of terms, and a scholarly atmosphere pervades the whole book. In the part on special therapeutics the alphabetical arrangement is continued, and the remedies are printed in full-face type to aid the eye in scanning the text. The initials of the authorities on the various drugs are generally given, and many approved prescriptions are added.

Four pages are filled with the formulae of the most noted patent medicines and secret nostrums, such as the Keeley cure, Ayer's, Ely's, Hamlin's, Helmbold's, Hostetter's, Davis', Pierce's, Radway's, Swift's S. S., Warner's and other so-called cures.

There are articles on poisoning, differential diagnosis, temperature, obstetrics, urinalysis, etc., a voluminous index

of thirty-eight pages and a convenient thumb index.

However perfect the book, some imperfections may be predicated of it. Curiously enough, on page 507, in a formula, occurs the name of a remedy which cannot be found in the index or anywhere else in the book. The term given is "curaeoe." The student will find no description or mention of it even in the article on aloes in the body of the work. Eggs and rare beef are recommended in chronic Bright's disease, but the author may, or may not, endorse such a diet. On page 179 the statement is made that the active principle of cimicifuga has not been isolated. Cimicifugin, in pill form, is to be had in the market, and is active enough to produce the characteristic effects of the drug.

There is no article on peroxide (dioxide) of hydrogen. No account is given of the following remedies: dermatol, euophen, phenocoll, pyoktanin, salophen, thiol, pentol, the salts of strontium or sozoiodol, which was first made and used by one of the author's own townsmen in San Francisco.

MISCELLANY.

PRELIMINARY MANIFESTO OF THE SECTION ON DISEASES OF THE MIND AND NERVOUS SYSTEM, PAN-AMERICAN MEDICAL CONGRESS.—*Honorary Presidents*.—Dr. Jorge Diaz Albertina, Havana, Cuba; Dr. Juan C. Castillo, Lima, Peru; Dr. C. G. Comogys, Cincinnati; Dr. F. X. Dercum, Boston; Dr. J. T. Eskridge, Denver, Col.; Dr. Orpheus Everts, College Hill, Ohio; Dr. Juan X. Covantes, City of Mexico, Mexico; Dr. Allen McLane Hamilton, New York; Dr. William A. Hammond, Washington; Dr. P. O. Hooper, Little Rock, Ark.; Dr. Henry M. Hurd, Baltimore; Dr. J. G. Kiernan, Chicago; Dr. J. A. McBride, Wauwatosa, Wis.; Dr. Charles K. Mills, Philadelphia; Dr. Moncorvo, Rio de Janeiro, U. S. Brazil; Dr. Putnam, Boston; Dr. E. C. Seguin, New York; Dr. E. C. Spitzka, New York; Dr. G. Isaac Urgarte, Santiago, Chile; Dr. Samuel Webber, Boston; Dr. Joseph Workman, Toronto, Canada.

Executive President.—Dr. C. H. Hughes, 500 N. Jefferson avenue, St. Louis, Mo.

Secretaries.—Dr. A. B. Richardson, (English speaking), Columbus, Ohio; Dr. M. G. Echeverria (Spanish speaking), Key West, Fla.; Dr. Meléndez Cabrea (Hospicio San Buenaventura), Buenos Ayres, Argentine Republic; Dr. Nicolas Horitz, La Paz, Bolivia; Dr. Cairos Eires, Rio de Janeiro, U. S. of Brazil; Dr. Stephen Lett, Guelph, Canada; Dr. Plaloo, Kingston, Jamaica, W. I.; Dr. Paolo Garcia Medina (carrera 8, núm 277), Bogota, Republic of Colombia; Dr. Emiliano Nuñez (Galiano 19), Havana, Cuba; Dr. Jose Azurdia, Guatemala City, Guatemala; Dr. George Herbert, Wailuku Maui, Hawaii; Dr. Secundino E. Sosa, (Hospicio de Mujeres Dementes), City of Mexico, Mexico; Dr. Pellais, Leon, Nicaragua; Dr. Francisco Soca (Florida 90), Montevideo, Uruguay; Dr. Hemiterio Formez, Merida, Venezuela.

Every effort is being made to make the meetings of the Section on Diseases of Mind and Nervous System both scientifically profitable and pleasant. Papers of distinguished merit from neurological students and physicians eminent in psychiatry, have been promised.

Every physician on this continent of America, North or South, is hereby cordially solicited and welcomed to join in the meetings of this important Section of the approaching Pan-American Medical Congress; and it is hoped by unity of effort and cordial coöperation to make the Section of Nervous and Mental Diseases second to none in the Congress in fruitful results to Pan-American psychiatry.

Let us come together from all the America and make the coming convocation one long to be remembered for its scientific and social benefits to all. Fraternally,

C. H. HUGHES,

Executive Pres. Sec. on Diseases of the Mind and Nervous System.

MEMBERS of the Association who desire to present papers at the ensuing meeting on subjects connected with the skin or syphilis, will communicate with Dr. Dunlap, 408 Fayette Park, Syracuse, N. Y., in order that the program may be arranged.

LOUIS A. DUHRING,

Chairman of the Section on Dermatology and Syphilology.

The Section on Dermatology and Syphilography of the Pan-American Medical Congress has been fully organized as follows:

Honorary Presidents.—Dr. Silva Arango, Rio de Janeiro, U. S. of Brazil; Dr. L. Duncan Bulkley, New York; Dr. Juan C. Castillo, Lima, Peru; Dr. Louis A. Duhring, Philadelphia; Dr. Le Grand N. Denslow, St. Paul; Dr. Maximiliano Golan, City of Mexico, Mexico; Dr. James Nevins Hyde, Chicago; Dr. Prince A. Marrow, New York; Dr. R. B. Morison, Baltimore; Dr. D. W. Montgomery, San Francisco; Dr. A. Ravogli, Cincinnati; Dr. A. R. Robinson, New York; Dr. Antonio Rubio, Pinar del Rio, Cuba; Dr. M. Lucas Sierra, Santiago, Chile; Dr. R. W. Taylor, New York; Dr. A. Van Harlinger, Philadelphia; J. C. White, Boston, Mass.; Dr. Edward Wigglesworth, Boston, Mass.

Executive President.—Dr. A. H. Ohmann-Dumesnil, No. 5 South Broadway, St. Louis, Mo.

Secretaries.—Dr. Wm. S. Gottheil (English-speaking), 25 West 53d Street, New York, N. Y.; Dr. John Forest, (Spanish-speaking), Charleston, S. C.; Dr. Carlos Lloveras, (Piedad 944) Buenos Aires, Argentine Republic; Dr. Viscarra Ileredia, La Paz, Bolivia; Dr. W. S. Barnes, (Leper Hospital) Mahaica, British Guiana; Dr. Joan P. Gabiza, Rio de Janeiro, U. S. of Brazil; Dr. J. E. Graham, Toronto, Canada; Dr. Enrique Robelin, (Jesus Maria 91) Havana, Cuba; Dr. Daniel E. Coronado, (Calle, 13, núm. 120) Bogota, Republic of Colombia; Dr. Daniel Nunez, San Jose, Costa Rica; Dr. Angel Rivera Paz, Guatemala City, Guatemala; Dr. H. G. McGrew, Honolulu, Hawaii; Dr. P. Numa Rat, Antigua, Leeward Islands, W. I.; Dr. Francisco Bernaldez (Escuela de Medicina), City of Mexico, Mexico; Dr. Bevan N. Rake, Port of Spain, Trinidad, W. I.; Dr. Manuel Bonasso, (Arapay Esquina Colonia) Montevideo, Uruguay; Dr. Adolfo Briceno Picón, Merida, Venezuela.

Advisory Council.—Dr. T. B. Keher, 911 Chesnut Street, St. Louis; Dr. B. Browson, 123 West 34th Street, New York; Dr. Jos. Zeisler, 125 State Street, Room 27, Chicago; Dr. J. P. Knoche, Kansas City, Mo.; Dr. W. T. Corlett, 333 Prospect Street, Cleveland, O.; Dr. M. P. Vander Horck, Syndicate Block, Minneapolis; Dr. B. Merrill Rickets, 137 Broadway, Cincinnati, O.; Dr. H. W. Blanc, Sewanee, Tenn.; Dr. J. V. Shoemaker, 1519 Walnut Street, Philadelphia; Dr. J. H. Bloom, Louisville, Ky.; Dr. H. W. Stelwagon, 1411 Spruce Street, Philadelphia; Dr. J. C. McGuire, Washington, D. C. Communications, notices of papers, etc., should be sent to the Secretary, Dr. W. S. GOTTHEIL.

25 West 53 Street, New York City.

THE ARIZONA MEDICAL ASSOCIATION met in its regular annual session February 27, and remained in session three days. The following officers were elected for the ensuing year: President, Dr. H. A. Hughes; First Vice-President, Dr. R. C. Dryden; Second Vice-President, Dr. C. H. Jones; Third Vice-President, Dr. A. H. Hoeffer; Secretary, Dr. L. D. Dameron; Treasurer, Dr. W. T. Barry. The Association is only a year old, yet the meeting was marked with interest, much good being accomplished.

L. D. DAMERON, Sec'y.

The following physicians have been appointed members of the Advisory Council of the Section on Anatomy of the Pan-American Medical Congress: Dr. F. H. Mall, University of Chicago, Chicago; Dr. Charles F. Dolley, 3707 Woodland Ave., Philadelphia; Dr. Edward K. Dunham, Carnegie Laboratory, New York; Dr. Elizabeth R. Bundy, Woman's Medical College, Philadelphia; Dr. Wm. M. Gray, Army Medical Museum, Washington; Dr. H. C. Tinkham, University of Vermont, Burlington, Vt.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from March 11, 1893, to March 17, 1893.

Major John C. G. Happersett, Surgeon U. S. A., extension of leave of absence granted on surgeon's certificate of disability, is further extended three months on account of sickness.

First Lieut. Charles Willcox, Asst. Surgeon U. S. A., leave of absence granted is extended one month.

Capt. Blair D. Taylor, Asst. Surgeon U. S. A., is granted leave of absence for one month, to take effect when his services can be spared by the post commander.

Capt. N. S. Jarvis, Asst. Surgeon U. S. A. (Ft. Apache, Ariz.), is granted leave of absence for one month.

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CHICAGO, APRIL 1, 1893.

No. 13.

SURGERY OF THE GALL-BLADDER AND DUCTS.

Opening address of the Chairman of the Section of Anatomy and Surgery of the American Medical Association, at the meeting in Detroit, Mich., June, 1892.

BY J. McFADDEN GASTON, M.D.,
OF ATLANTA, GA.

All those disorders of the biliary apparatus dependent upon obstruction of the hepatic, cystic and common bile ducts, call for surgical relief. Not alone the trouble from gall-stones, but those resulting from aneurism of the hepatic vessels, indurated tumors and adhesive inflammation of the coats of the ducts, come within the scope of progressive surgery. The field of investigation has been greatly enlarged in this department in a comparatively brief period and many derangements of the gall-bladder and ducts, which were formerly intractable, are now within the domain of the aggressive surgeon.

The space allotted to this undertaking does not permit me to enter upon the consideration of many of the points involved in biliary obstruction, and my attention will be directed chiefly to the measures indicated in occlusion of the common duct. In regard to the procedures heretofore adopted, I would refer those who may be interested to my original article in October, 1884, in *Guillard's Journal*; also to the reports of my experimental work in the *Atlanta Medical and Surgical Journal*, for September, and October, 1884, and September and November, 1885. A complete resumé of this subject was made in my contributions to the second volume of the Reference Handbook in 1886, under the headings of cholecystectomy, cholecystotomy and duodeno-cholecystostomy. My paper on "The Surgical Relations of the Gall-bladder to Obstruction of the Ducts" will be found in the Transactions of the Medical Association of Georgia for 1886. A contribution to the British Medical Association at Brighton, in 1886, "On the Practicability of Establishing an Artificial Fistulous Opening in the Human Subject, between the Gall-bladder and the Duodenum," appeared in the *British Medical Journal*.

Having a few reprints of this paper on hand I will cheerfully furnish them to such members of this Section as may wish to investigate this matter. These publications included the data presented by others up to that time, and have doubtless had their share of influence upon the subsequent treatment of this class of cases.

The increasing interest exhibited by surgeons in the serious consequences resulting from any obstruction to the flow of the bile from the liver has been characterized by greater activity in affording surgical relief for these troubles. Various operative measures touching the gall-bladder and ducts, with crushing and needling of gall-stones, have brought about a revolution not only in the theoretic views of

surgeons, but in their surgical appliances. A new era has dawned upon gall-bladder surgery, and old things are passing away, to be consigned to the sea of oblivion.

While the operation of natural cholecystotomy has been done in a large number of cases, by different surgeons, there has been no material improvement in its technique or in its final benefit to the patient. The organic changes, to which cholecystectomy is usually thought to be best adapted, have not been encountered so often as to require this measure in many cases. Yet the good results in a large proportion of the operations reported warrant its adoption under certain conditions, and I have suggested that in excising the gall-bladder its upper wall should be left adherent to the liver.

Incision and suture of the wall of the common bile duct for the removal of gall-stones have been done in twelve cases, with only one fatal result from the operation. Three of the cases have been operated on by Courvoisier, and one by each of the following named: Kummell, Heusner, Kuster, Rehn, Braun, Frank, Hochenegg, Marcy and Vander Veer. A stone has also been successfully excised from the cystic duct by Ross.

The development of the possibilities of benefit from the anastomosis of the gall-bladder and the common bile duct with the duodenum and other divisions of the intestinal canal has latterly occupied the earnest attention of surgeons. When the natural outlet for the bile becomes obstructed it is recognized as proper to effect an artificial passage for it into the intestine. A new departure in operative measures consists in connecting the walls of the common duct with the duodenum, as was done in a case reported September 3, 1891, in the *Deutsch Medicinische Wochenschrift*, No. 36, by Sprengel.

A woman, 30 years old, suffered from the usual concomitants of biliary obstruction, after the abdomen was opened the cystic duct was mistaken for the common duct, and the latter for duodenum. A stone found in the first was pressed into the distended common duct and the passage was supposed to be free. But in another subsequent operation, a stone was found in the cystic duct and a second at the portal channel, which was crushed. The common duct filled immediately with bile, and in order to provide an outlet it became necessary to connect the walls of the duct and the duodenum by incising each and bringing them together with stitches. In doing this some bile necessarily flowed into the wound, but was not followed by any serious disturbance. Three months afterwards the patient had recovered from all trouble and it is to be inferred that the communication from the common duct into the duodenum continued open.

A modification of cholecystotomy by Wöhlér has been adopted in a few cases, in which all abnormal

accumulations are removed from the sac and the ducts are freed from any concretions. With a fair prospect of the full restoration of their functions the incision in the wall of the gall-bladder is closed and then attached by sutures to the parietal incision. It is provided in this operation that when the union of the incised wall of the gall-bladder shall be completed a separation of the attachment to the external parietes shall be effected, so as to allow freedom to the gall-bladder. This process is based upon a doubt as to the efficiency of suturing the tissues of the sac: and in case of any yielding of the stitches, to favor the escape of the bile through the parietal wound instead of its discharge into the peritoneum. While the presence of freshly produced bile is not proved to be productive of serious results, this procedure implies an abundance of caution against the contingency of failure in suturing the sac. In the ordinary process of attaching the incised wall of the gall-bladder to an opening in the abdomen, styled natural cholecystotomy, with a view to give an outlet for the bile, there is no provision for utilizing this discharge from the liver. When the ducts are patulous, leading into the gall-bladder and into the duodenum, the process of ideal cholecystotomy, by emptying the contents of the gall-bladder closing the incision of the walls, and with dropping this viscus into the abdomen, has been attempted with satisfactory results, and a successful case has been reported recently by Hardon. It would hence appear that all cases of the obstruction of the cystic and common ducts by gall-stones call for their dislodgement by one or another procedure, to afford an outlet for the bile; and that the attachment of the incision in the gall-bladder to the opening in the wall of the abdomen, leading to a discharge of the bile externally, should be regarded as a mere temporary recourse. In the event of failure to effect an outlet for the bile through the common duct, then cholecystenterostomy is clearly indicated. As to the portion of the intestine which should be selected, for the attachment of the gall-bladder or the ductus choledochus, we have a definite guide in the entrance of the bile naturally into the duodenum; and the nearer to this an anastomosis can be effected the better effect may be expected. The relations of the duodenum and jejunum to the gall-bladder ordinarily are such as to facilitate their union, and I have given the preference to the duodenum from physiological considerations as well as from surgical convenience, while objecting to the colon.

It is, of course, presumed that there is such an occlusion of the common bile duct as to prove irremediable by other means before proceeding with an operation to effect an outlet for the bile by uniting the gall-bladder with the intestinal canal. A misunderstanding of this condition has led to misapprehension of the end to be attained by duodeno-cholecystotomy or cholecystenterostomy, and once for all let me say it is only warranted by occlusion of the common duct. It may be allowed me, without a charge of indelicacy, to quote in this connection the pointed remarks of Greig Smith, upon entero-cholecystotomy in the last edition of his work on abdominal surgery as follows:

"By this operation is meant the establishment of a fistula between the gall-bladder and the intestine. The operation is indicated only in cases of incurable biliary fistula—that is, in cases where there is irreparable occlusion in the ductus communis

choledochus. The original operation of Winiwarter successfully established a communication between the gall-bladder and the colon. In this situation the physical effects of the biliary secretion were lost. Dr. Gaston, of Atlanta, Georgia, in a series of instructive experiments on dogs, showed how a communication might be established between the duodenum and the gall-bladder, thus preserving in the system whatever value the bile may have. Gaston speaks of his operation as duodeno-cholecystotomy. Some misconceptions and misdirected criticism's of Gaston's operation have appeared in various journals; to these he has given satisfactory answers." Greig Smith states further that, "this operation, when it is easily carried out, is theoretically the best. But fistula with the upper portion of the jejunum would be scarcely inferior to fistula with the duodenum, and with any part of jejunum or even ileum, superior to fistula with the colon."

Having such a recognition of my work in this book, and being endorsed fully by McGraw in his address upon taking the chair of this Section at the last meeting of the Association, I feel warranted in referring to the appreciation of my labors in this line by the others at home and abroad, whose commendation does me honor.

In the review of my reviewers, which appeared in the *Medical and Surgical Reporter* of September 12, 1885, it was stated that I could bide my time for a just estimate of my experimental work, and the way is now open for an impartial consideration of this subject. In the comprehensive and elaborate record by Courvoisier of what has been accomplished during the last decade for the relief of biliary obstruction, my work has not been overlooked. He states that the experiments on animals were undertaken in the hope thereby of clearing up the way for a practicable future operation on man. Gaston sought to utilize the elastic ligature. In five dogs he carried it through the approximated walls of the gall-bladder and duodenum, in such a way that one-half of the tightly drawn loop lay in the former the other half in the latter. The loop was to cut through both walls at the same time, and thus form a fistula between both cavities. At the close of his operations Gaston placed a catgut suture around the place where the walls of the organs lay in apposition. In one animal the adhesions were completed by the eleventh day and in this case there was a beautiful fistula, while the ligature had passed on through the intestine. In 1884, Gaston also made an experiment on a young dog, with a silk ligature, and obtained a good result. Later on he repeated these experiments with ligation of the common duct without satisfactory results. Courvoisier further states that Golzi reports five experiments on dogs. The common bile duct was ligated. Then, with a catgut suture, the surfaces of the gall-bladder and the nearest loop of the small intestine were stitched around a loop of suture, passed through each wall so as to cut through. It is stated that the animals bore the operations without material derangement of the digestion. It is also noted that Page operated in the same manner as Golzi did, on three dogs, omitting, however, the ligation of the common duct. One dog survived, one sank with peritonitis, and the third died after six weeks, showing a considerable shrinkage of the gall-bladder but without any fistula. The result is not known in the dog which survived. Courvoisier also

alludes to the process suggested by Harley for effecting a communication from the gall-bladder into the intestinal canal. He proposes to effect a perforation of their walls by the use of caustic potash, which would at the same time excite inflammation of the adjacent surfaces, and then stitch them together. This is expected to secure a union of the surfaces with a fistula in the center.

While each of the several operations may be indicated in special cases, the present outlook of anastomotic procedures for conveying the bile from the liver into the intestinal canal in obstruction of the common duct is entitled to precedence in gall-bladder surgery.

All our resources being exhausted without relief to the impediment for the discharge of the bile through the ductus choledochus, and finding the integrity of the gall-bladder favorable for its attachment to some portion of the intestine, we may rest assured of being able to effect an opening from the former into the latter by which the bile shall subserve its legitimate purpose in the animal economy.

The various procedures adopted by Golzi, Page and myself in our experiments upon dogs were undertaken with a view to guide others in the performance of operations upon human beings. This work must hold a place similar to that of pioneers who have gone forth to blaze out the paths in an unexplored region and have set up danger signals to caution the unwary traveler who may come after them in the search for a route which shall lead to the goal of their expectations. Some quagmires and quicksands were encountered by us which may be avoided by others. All must allow that the fruit of our experience has thrown much light upon the intestinal labyrinth in which we groped without a guide to direct us at that period.

My efforts were directed at the outset mainly to the establishment of a fistulous connection between the gall-bladder and duodenum by means of an elastic ligature passed through their approximated walls. This was surrounded with a circular or an oval continuous suture of catgut, so as to effect the immediate adhesion of the serous surfaces. But it was subsequently found that a single stitch of silk thread united the surfaces and ultimately cut its way through the two approximated walls so as to effect a communication from the gall-bladder into the duodenum.

The difficulties encountered in ligating the common bile duct subsequently were the greatest obstacles to the final success of this operation, and would not be encountered in case of preëxisting occlusion, which is the occasion of performing an operation on the human subject.

These and other experiments, undertaken upon twenty-one dogs, are illustrated in the cuts accompanying my paper laid before the British Medical Association.

It may be stated here that my conception of the procedures indicated were not limited to the means employed in these experiments, and it was distinctly set forth that some other process may be found preferable, and it rests with surgeons to adopt that which proves best.

A number of operations have been referred to by Courvoisier, Marcy, Vander Veer and Ross as undertaken by different surgeons, with a view to secure the results aimed at; and I cannot perform a more

profitable service to the profession than to present some of the details gathered from various sources.

To Nussbaum is attributed the first suggestion of relieving the occlusion of the common bile duct by discharging the bile into the intestinal canal through artificial openings in the adherent walls of the gall-bladder and the intestine.

But the credit of having first accomplished this result upon the human being is undoubtedly due to Von Winiwarter; and it affords me the greatest satisfaction to award him the honor of priority in the execution of cholecystenterostomy.

We are informed that between the 20th of July, 1880, and the 14th of November, 1881, he treated for sixteen months a man aged 34, who suffered from obstruction of the common gall duct, and who was subjected to six different operations for the formation of a fistula between the gall-bladder and colon. All kinds of difficulties thwarted this undertaking, but it is claimed that he eventually succeeded in attaching the gall-bladder to a coil of the small intestine and effecting a fistulous communication, by which the bile escaped into the intestinal canal, thus obviating the inconvenience of an external outlet.

After a lapse of six years, during which the various experiments on dogs by Golzi, Page and myself were performed, Monastyrski united the gall-bladder with the jejunum on the 4th of June, 1887.

He incised the abdominal wall, punctured the gall-bladder, incised its walls and the jejunum, and sewed the edges with catgut. A fistulous communication was secured two meters below the duodenum, but death ensued ultimately from carcinoma of the head of the pancreas, as verified by the autopsy.

The operation of Kappeler came next in the order of time, being done on the 6th of July, 1887, by uniting the gall-bladder with the ileum by Wolfier's suture. The patient progressed favorably for a time and returned to work, but eventually died on September 9, 1888, fifteen months after the operation. The autopsy showed that a biliary fistula was established about eight feet from the ileo-cæcal valve, and that its intestinal orifice was provided with a valve which allowed the contents of the gall-bladder to pass into the intestine, but prevented the passage of the intestinal contents into the gall-bladder. Doubtless a similar provision exists in all such cases.

In the year following the operation of Kappeler Fritzsche accomplished a fistulous opening from the gall-bladder into the jejunum, three meters below the pylorus. At the post-mortem examination a carcinoma of the size of a walnut was found at the mouth of the common bile duct. Socin and Bardenheuer each attached the gall-bladder to a loop of the small intestine. The case of the latter died in the fourth week and no fistula was found. It is said to have been done with elastic ligature.

Robson operated on March 2, 1889, upon a patient who had undergone a previous cholecystotomy when the ducts were freed and the gall-bladder was sutured to the abdominal wall with firm adhesion.

The common duct being subsequently occluded an incision was made through the scar from the former operation in the semilunar line, and it was found that the attachment of the gall-bladder could only be effected with the colon. Both were incised and united with chromicised catgut in two rows. The former external fistula was sewed up and a drainage tube inserted in the wound. After one day bile came out

of the drainage tube and also faecal matter from the intestinal wound. In spite of this a speedy recovery with bilious matter in the faeces is reported.

On July 13, 1889, Terrier performed an operation for the relief of occlusion of the common duct. An incision was made in the median line above the navel: the gall-bladder was punctured and the bile discharged. Upon incising its walls and exploring its cavity no stones were found and the cystic duct was open. There was a gall-stone impacted in the oblong enlargement of the common duct, which could not be removed. After attaching the gall-bladder to the duodenum by a circular or oblong row of cat-gut sutures, and before tying the last stitches, the walls of both were incised and a drainage rubber tube was introduced, so as to pass from the cavity of the gall-bladder into the duodenum. The fundus of the gall-bladder was sutured to the lower angle of the external incision which was then closed up by a catgut suture. There was fever until August 1, but the itching and jaundice gradually disappeared. The drainage tube passed with the evacuations nine days after the operation, and the stools gave evidence of the presence of bile. The external wound healed by first intention. The patient was dismissed on August 10, in ordinary health. This patient died in the spring of 1890 from influenza and no gall-stone was found in the common, bile duct.

Courvoisier, in like manner with Robson, performed the operation of natural cholecystotomy upon a patient without getting a satisfactory result. After the lapse of a year complications arose which demanded cholecystenterostomy and this was done on the 25th of March, 1890. An incision was made through the abdominal wall below the ribs along the border of the liver. The gall-bladder was detached from the abdominal wall, and after incising the sac, a gall-stone was removed from the common duct and others scooped from the hepatic ducts. An incision into the lower surface of the gall-bladder was united to the colon by an oval row of catgut sutures, and before putting in the last stitches the wall of colon was incised. The fistulous parts of the gall-bladder were cut away and the edges stitched up. Two drainage tubes were inserted and the external wound closed around them. There was no fever after April 2. Bile was found on the dressings but its source was not determined. There was bile in the stools on the 6th day of April, and on the 8th the drainage tubes were removed and the external wound was stitched up. On the 15th of April the patient was free from jaundice and got up feeling very well. The case was dismissed about the middle of May, and in the middle of July her condition was excellent. There was no more colic or jaundice.

Courvoisier thus sums up the result of these seven cases: "One person operated upon died as a consequence of a complication which should not be charged to the method. All others recovered from the operations but in four of the cases the cancerous condition of pancreas brought on death at a later period. A definite final cure only is claimed in the cases of Robson and Courvoisier, which it will be remembered had the gall-bladder attached to the colon not by choice but from necessity."

The practicability of effecting an outlet from the gall-bladder into the intestinal canal can no longer be doubted, and in the view of Courvoisier it stands more and more securely as the details from trust-

worthy sources become more widely disseminated.

The indications for the operation are formulated by him as follows:

a. When gall-fistulae are difficult to remove, whether traumatic, ulcerative or operative.

b. In permanent obstruction of the common bile duct (except in cases of gall-stones).

c. In traumatic and ulcerative perforations between the common duct and the abdominal wall.

It is contra-indicated in the following cases:

1. When the patients have grown feeble, in which cases the provisional cholecystostomy might be used.

2. When the common duct is obstructed by gall-stones, in which case, lithectomy with stitching, or lithotripsy are indicated.

A notice of a case of cholecystenterostomy has been reported by Helferich (in the *Deutsch Medicinische Wochenschrift*), February 25, 1892, for the details of which I am indebted to Dr. P. J. Rozenheim, of New York.

The patient, a man aged 29, had suffered periodically from pains in the stomach since 1885 and developed jaundice in April, 1891. During the following month he had attacks of biliary colic, recurring every fortnight, the jaundice being marked after every attack. It was thought that the common duct was obstructed by calculi and an operation for their removal was undertaken in November. An incision was made midway between the lower border of the ribs and the border of the enlarged liver, extending vertically in the linea alba to the ensiform cartilage. After the liver had been retracted, the gall-bladder came into view; it contained no calculi, but an examination disclosed a number of calculi in the common bile duct, which it was found impracticable to remove. An opening was, therefore, made in the gall-bladder and another in the first part of the jejunum, and a communication was established between these structures by suturing the corresponding margins of the apertures. The fistula thus formed was of the calibre of a lead pencil. The patient made a rapid recovery, the symptoms of jaundice having disappeared. During the following January he experienced two slight attacks of fever, without any jaundice, which the author attributed to calculi in the common bile duct. As a means of affording palliation of his sufferings the operation was a success.

Chavasse has reported, in *The Lancet*, an interesting case in which an anastomosis between the gall-bladder and colon was affected by a process differing materially from the previous operations. A man 48 years old had undergone cholecystotomy for the relief of jaundice dependent upon biliary obstruction by calculi, which was followed by the persistence of a biliary fistula. Other means failing, with the aid of Senn's bone-plates a communication was established between the gall-bladder and the colon at its hepatic flexure. At first bile and faecal matter were discharged through the abdominal wound, but ultimately this closed, the stools were passed naturally and the general condition of the patient was much improved.

Korte also reports a successful case of the union of the gall bladder with the duodenum, after the manner of Terrier, thus affording two favorable results of duodeno-cholecystostomy.

So far as the operations are to be considered, those of Kappeler and Terrier were successes, and being added

to the other six final good results, give eight cures out of twelve cases in which the operation of cholecystenterostomy has been performed.

This encourages the expectation, with more improved methods, of obtaining a satisfactory solution of the problem of relief for occlusion of the common bile duct. While other means may be employed for correcting temporary obstructions of the ducts, the great desideratum in occlusion of the common duct is to effect an artificial opening from the gall-bladder or duct into the duodenum or the adjacent portion of the intestinal canal.

The practice of tamponage with gauze around the locality of biliary exudations, whether connected with operations or from injuries involving rupture of the ducts or the gall-bladder, has proven successful in preventing the diffusion of bile throughout the cavity. Upon this principle it is found that the introduction of gauze in the vicinity of a sutured duct or an anastomosis with the intestine, acts well and may be removed when the drainage is no longer needed.

TEXAS AS A CLIMATE FOR CONSUMPTION.

BY F. D. MARSHALL, M.D.,
OF CHICAGO.

Mr. President and Members of the American Health Resort Association:—My attention was first directed to the climate of Texas as a fit place for consumptives in the spring of 1868.

Dr. J. Scoonover a classmate of mine had just graduated from the College of Physicians and Surgeons, of New York: and was now physically a wreck.

The doctor had been a hard student for several years and had a family history that was unmistakable, having lost two brothers of consumption.

Dr. Metcalf of New York, after a careful examination of the case advised him to go to Texas or Florida, he chose the former place having some knowledge of the country.

Dr. Scoonover's case was an unmistakable one of tubercular deposit in the right lung as shown by physical examination and confirmed by great emaciation and spitting of blood.

His case seemed hopeless, but with small means at his command and a deal of pluck, he headed for the southwest, locating at Greenville, Hunt Co., where he began his professional work, with a pony and saddle as a means of getting about.

Greenville at that time was a small place, the centre of a vast stretch of rolling prairie devoted mostly to cattle growing with an occasional spot under cultivation; leaving Chicago in March, the change was a grateful one and improvement began at once, his appetite increased and his cough lessened very perceptibly from the start.

For several years I was in the habit of going once a year from Chicago and making him a visit and in that way was in position to keep close watch of his condition. I will say here, that the only medicine he took was an abundance of pure Norwegian cod liver oil. As a help to the assimilation of the oil he had an abundance of sunshine and pure air which in these cases are indispensable. Dr. Scoonover has for the past fifteen years been a well man without the slightest indication of a return of his lung disease.

Greenville has an elevation of about 800 feet above sea-level.

In 1885, having been a great sufferer from neuralgia of my stomach and face, I moved to Texas and located at Denison, Grayson Co., only four miles inside north boundary of the State. Here I engaged in stock growing, and like magic, my stomach and face pains ceased; could eat without fear, and too, foods that I had shunned in this climate. I speak of my own case wishing to emphasize this one fact to-wit: that in that pure air and bountiful sunshine digestion and assimilation of food is markedly stimulated and here is one great secret of improvement for the consumptive. Denison has an elevation of 1000 feet; the days in summer are at times hot, yet, the gulf breeze makes even the summer months much more enjoyable than in many northern locations.

A notable feature of the climate of Texas is its well drained country which is simply perfect, especially in the localities best fitted for the invalid, so that malarial diseases are unknown to some of the oldest inhabitants.

The general course of the streams is southeast and as you travel towards their source you have reached an elevation of from three to five thousand feet above the sea; and between the gulf and the extreme northern and western portions of the State can be found a climate that will suit almost any case of consumption that is curable.

Had I time I would go into a detailed description of the locations of this vast country where homes can be had for those suffering with lung diseases, but at present will only mention a few, some of which may be well known to you. San Antonio has for years and still enjoys a great reputation for the consumptive, with an elevation of 1,500 feet, and 150 miles from the gulf with her abundant water supply and beautiful scenery will furnish advantages, especially in winter, perhaps unequaled by any place in this country. A sanitarium is much needed in this location, and small cottages to accommodate families who wish to live there while some member of the family is ill.

Thirty miles northwest may be found at about the same elevation, Bourne, a beautiful place for health seekers where the surroundings are beautiful and good accommodations can be had. This locality is by many, regarded as much better than San Antonio, Pure spring water is in great abundance in this part of the State, as evidenced by three rivers which rise within eighteen miles from north to south, whose waters gush forth in great volumes from the low mountain ranges.

Kerrville, about forty miles from Bourne, is a new place on the Gaudalupe river, bids fair to be a great resort. The mountains though not high are generally covered with red cedar and live oak.

El Paso has an elevation of 3,750 feet, and in many respects is better than other places, it being better protected from the north winds that come down from Colorado called "northers." Abilene has about the same elevation as El Paso, and will in time become a great place for consumptives.

San Angelo and the country east has only an elevation of 2,000 feet, but is free from malaria and is cool in summer. There are many other places I have not time to mention.

The winters of Texas, though sometimes cold, going below freezing in extreme northern portions, are short and delightful, and during the summer, though the sun is hot, the air is so invigorating

that sunstrokes are very rare. In the valleys of the Brasos Pacas, Colorado and Rio Grande rivers, fruit in great abundance is grown, and of a superior quality, grapes especially. The rainfall in Texas has notably increased where the land has been cultivated and hence the best locations are those least fit for agriculture: such are the places I have mentioned. The rainfall at El Paso is thirteen inches per annum, the least of any places I have mentioned.

I have known a washing of clothes to become dry enough to wear put out at 9 p.m. and taken in at 4 a.m. I believe the southwest is to become the home of the consumptive, and let us, as physicians, help on in the great work until there shall be established in Texas, New Mexico, Arizona, some portions of California, Colorado and Kansas, capacity for caring for suffering humanity afflicted with consumption. And when our patients have found a home and recover, advise them to remain there where they can be well.

REPORT OF CASES OF TREPHINING AND CEREBRAL INJURY.

From the records of the Cambridge Society for Medical Improvement.

BY ALBERT H. TUTTLE, M.D.

Case 1.—Reported by C. E. Vaughan, M.D. Wm. R. S. B., age 24 years. December 13 was thrown from his horse, striking his head. For twenty minutes appeared unhurt, then a slight convulsion occurred followed by four more in the course of an hour. When he reached the hospital the pupils were somewhat contracted, but equal and responsive to light; the skin was cool and dry, and the face pale; pulse 42, temp. 99°, and the respiration 16. There was no complaint of pain, but a strong desire to urinate and to defecate, and a large amount of apparently normal urine was passed voluntarily. There was no evidence of paralysis, or external signs of fracture or depression of the bone, or injury. Biliary vomiting occurred, and soon intense diffuse headache, with pain in the dorsal region. Bowels reacted with great difficulty. The patient was conscious, yet the mind was dull and confused, but answered questions when aroused.

On the 14th, the condition was about the same; somnolence: slow, but perfect cerebation; increased headache partially relieved by morphia. The scalp was shaved but no fracture discovered, and only a slight, superficial, scabbed scratch was found on the occiput, to the right of the median line.

On the 15th, mind more sluggish, imperfect cerebation, irritable when disturbed, temp. 101°, pulse 52-55, resp., 14; pupils somewhat larger when at rest, and the left does not respond as quickly as the right, and expands again while still exposed to light; slight ecchymosis of the right eyelid, and a limited œdema of the scalp on the occiput, to the right of the median line, near the junction of the lambdoidal and sagittal sutures.

On the 16th, increased somnolence, and sluggish cerebation: the difference in the pupils is more marked, due to contraction of left, which responds very slowly to light; the œdema has extended to the ear, the skin has become ecchymosed, and of a purple hue; there is ptosis of the left eye lid, with ecchymosis of right, and the left angle of the mouth droops a little.

Owing to the decided and progressive signs of cerebral compression it was determined to make an exploratory incision. Operation under ether. A horizontal incision was made through the scalp about two inches above, and one inch behind the right ear; from the ends of this incision two more were made in a downward direction. By this means, a transverse fracture was discovered forming a clean crack without splintering or depression, the extent of which was not discovered, although three inches could be determined. By compressing the skull between both hands a distinct motion of the sides of the fracture could be produced. During the whole operation, clear blood welled up freely.

Two buttons of bone were removed with the circles slightly overlapping, some small clots extracted, and the wound dressed aseptically, with gauze drainage.

During the operation, the pulse rose from 40 beats to 120, and soon after fell to between 60 and 70. For twenty-four hours, there was no perceptible change in condition of the mind, pupils, eyelid or mouth, but mental activity slowly returned, and on the fourth day after the operation the patient became very excitable, irrational, and persisted in pulling off the bandages and getting out of bed. By the sixth day the pupils became equal, and reacted normally; there was less droop of the eyelids and mouth, and for the first time the patient realizes where he is, but has no recollection of the accident, or subsequent events. On the thirteenth day he was less excited, but certain delusions have become fixed ideas, viz.: first, that it is very important he should go home, even at the risk of his life, on account of some imaginary business; second, two cases of mistaken identity, confounding the house physician with his brother-in-law, and the night nurse, with another old friend. These ideas are not affected by arguments. There is a good deal of rambling, garrulous talk. The temperature is normal, but the pulse has risen. On the eighteenth day he became so much excited and persistent in his fixed determination to go home that it was necessary to confine him in a separate room with a special attendant. From this time he steadily improved, to entire convalescence.

Case 2.—Reported by C. E. Vaughan, M.D. Andrew M., age 56, fell from top of a wheel, striking the right shoulder and back of the head upon the ground. Upon being raised he stood up and spoke, retained consciousness about half an hour, rode home in a carriage, walked with some help into the house, but did not recognize his wife. Consciousness was soon lost and never entirely regained. He became restless, and when disturbed irritable, answering "I'm all right." Skin cool and dry; extremities cold; temperature 97.5°, pulse 42, and somewhat irregular, retention of the urine, pupils small but equal and responsive to light, respiration slow and irregular, no paralysis. He soon became comatose and could not again be aroused. There was a superficial scalp wound on the occiput to the right of the median line, but no evidence of a fracture or depression could be found by the finger or probe. At 11 p.m. there was irregular pulse, from 52 to 70 beats, Cheyne-Stokes respiration, subnormal temperature, and paralysis of right buccinator.

On the second day there was an increase in the size of the pupils, incontinence of urine, action of the bowels by means of salines and enemata, and ecchymosis and œdema about the scalp wound.

On the third day, there was irregular reaction of pupils to light,—the left less sensitive,—somewhat stertorous respiration, strong pulsations of the right facial artery, and to less extent of the carotid. On the fourth day there were sharp right-sided with milder left-sided convulsions, pin-hole-size pupils, irritated by exposure to light, right hemiplegia, and death on the evening of the fifth day.

The autopsy showed a small scalp wound on the right and back, two linea fractures without separation, depression on splintering of the edges, diverging from the site of the scalp wound but not meeting, one extending downward and forward across the lateral sinus to the base of the petrous bone and the other downward and backward across the occipital to its left border; a small extravasation of blood outside the dura on the left side, and beneath the dura several ounces of dark soft clotted blood which caused compression of the brain. The brain, on section, was moist, the small vessels were distended with blood, there were several small isolated clots of extravasated blood in the hemispheres, and the ventricles contained a little reddish fluid.

A comparison of these two cases shows the seat of the blow was almost precisely the same, that in neither were there any external signs of fracture, that in the first there was a clear history of compression of one side of the brain, produced by a local extravasation of blood, and the relief of the pressure by trephining was sufficient to entirely remove the symptoms; whereas in the second case, the symptoms indicated, besides progressive compression of both sides of the brain, which could not be localized, a severe general injury to the brain proper, produced directly by the concussion, and without any indications which would warrant operative interference. This was distinctly shown at the autopsy.

Cases 3 and 4.—Reported by Dr. E. H. Stevens. B. C., age 18, was thrown from a wagon against a curb stone, June 17, 1892, striking the skull and producing a transverse wound two and one-half inches long, situated one and one-half inches above the superciliary ridge on the left side of the forehead. Through the wound, which was filled with dirt, a depression could be felt, and upon dissecting back the pericranium, a transverse fracture was found nearly the length of the skin wound with a marked depression of its upper edge. The patient was semiconscious, with slow, regular, but feeble pulse, and contracted pupils; he vomited blood. A button of bone was removed with an inch trephine, the centre of which, was over the sound bone, and with considerable difficulty the depression was elevated, and the dura was found uninjured. There was very slight bleeding and the wound was brought together, excepting immediately over the site of trephining, where it was packed lightly with iodoform gauze, and dressed aseptically. The pupils dilated, the breathing became natural, the pulse rate increased to about 100, and the patient became conscious in about three hours.

June 18th, patient vomited all day; the pulse was slow and regular, and the pupils dilated.

On the 19th, vomiting ceased; pulse the same, pupils dilated and responding to light. The wound was dressed on the 20th, and looked well, the pulse was stronger, and the mind clear; there was some headache. From this time on convalescence was uninterrupted, and the patient was discharged July 16.

Case 4.—T. H., age 34, Oct. 27, 1892, was struck in the frontal region by an iron pulley of several pounds weight, which fell about ten feet, and walked into the hospital in a conscious condition. There was a clean cut wound two and one-half inches long which extended transversely across the forehead, two inches above the left eyebrow, and a depressed fracture of the frontal bone two inches long and one quarter of an inch in width, which was depressed to the depth of the thickness of the frontal bone at this point. A button of bone was removed with the trephine, and the depressed pieces of bone extracted. Several small pieces of the inner table were splintered off and lay loose upon the dura, the larger one being turned on its sharp edge and pressing firmly against the dura which was slightly torn and bleeding. The bleeding was checked, the opening of the skull covered with iodoform gauze, which was brought out at the lower angle of the wound in the skin, the wound closed with buried tendon suture, and a firm dressing applied. After the operation he became very restless and had severe headache. On the 30th, there was less headache, temperature 99°, and the wound which was looking well, after removing the iodoform gauze, was dressed. The wound entirely healed by November 8, and the patient was discharged on Dec. 5.

Case 5.—Dr. J. M. Crocker reported a case of a seafaring man who was struck on the head, and died from the effects of the blow in a few hours. The autopsy showed free hæmorrhage, and a large clot which caused death by pressure upon the brain, and that the case might have been saved by early trephining.

Case 6.—Reported by Dr. G. W. Jones. A butcher of middle age fell from his team, and was found by the wayside in a comatose condition, with a scalp wound on the right side, and a fracture of the temporal bone. The scalp was dissected back, and the skull trephined, when it was discovered that although the outer table appeared as a simple undepressed linear fracture, the inner table was quite comminuted, the splinters having lacerated the dura and produced considerable hæmorrhage and pressure on the brain. The case made a good recovery.

Case 7.—Reported by Dr. S. W. Driver. A boy 14 years old was thrown from a horse, striking his head, and producing a compressed comminuted fracture situated about two inches above, and an inch and a half behind the ear. When first seen he was semiconscious and delirious. After shaving and cleansing the parts, the scalp was dissected up, and one of the fragments of bone raised with considerable difficulty by means of an elevator, without trephining; it was then an easy matter to remove the remaining pieces. Free hæmorrhage followed, which was controlled by compression. In the after treatment of the case it was found that the granulations, which grew rapidly, forced their way through the meshes of the gauze dressing, and produced such close adhesions to it that the removal of the dressing was attended with considerable bleeding and much pain, and to obviate this a dressing, with wicking for a drain and in contact with the wound, was substituted, at the suggestion of Dr. Swan, and worked admirably.

Case 8.—Reported by Dr. A. P. Clarke. A boy, age 11 years, fell seventeen feet striking his head on a plank walk. He immediately had convulsions, vom-

ited, became partially unconscious and soon passed into a comatose condition with stertorous respiration. An incision was made by Dr. Holt over the supposed seat of injury, between the superciliary ridge and frontal eminence of the left side, and a button removed with the trephine. There was no manifest injury to the outer table, but a multiple fracture of the inner table was found which was pressing upon the dura and produced some laceration. The depressed portions were raised, and some splinters removed. The hemorrhage, at first severe, was controlled by application of carbolized cotton removed at short intervals, and the wound treated with an antiseptic dressing. The case made a complete recovery.

Remarks.—Dr. H. O. Marcy. Repair of the cranial bones is quite different from that of the long bones: this was first called to his attention by Ercolani. At the line of primitive injury the periostium, instead of regenerating as it does in long bones, undergoes a process of necrosis, and is accompanied by an absorption of bone. A membrane may form over the opening, but there is no regeneration of bone. The best specimens illustrating this are found in the private museum of Dr. Warren, now in the possession of his son, Dr. J. Collins Warren. There are also a number of ancient skulls in the Peabody museum, showing the changes of repair. In one noted case, that has been published as a case of early trephining, a photograph thrown upon a screen, by means of a projection lens, showed fine linea fractures radiating from the central opening, and demonstrated that it was more likely this trephine-like hole was caused by an instrument of warfare. This is further supported by the fact instruments of warfare have been found which could produce a wound similar to that in the skull. A series of photographs were shown representing special injuries of the skull in the practice of Dr. Marcy and others.

A noted case of suspended cerebration that occurred in a negro, struck on the head with a sabre and supported five years by charity in a condition more like beast than man in solitary confinement, was quoted from the description of Dr. Hunter McGuire, where on the removal of compression by trephining, the first words spoken were "Where has the army moved to-day."

TWO CASES OF EXCISION OF THE KNEE JOINT.

A clinical lecture delivered at St. Barnabas Hospital Minneapolis.
BY PROF. JAMES E. MOORE,
OF THE UNIVERSITY OF MINNESOTA.

Our next patient is a girl fourteen years old, who had an attack of polio-myelitis when she was an infant, which left several groups of muscles in the right limb paralyzed. When she steps upon the right foot the knee bends inward to a marked degree, the bottom of the foot turns outward, and the femur rotates inward, so that the head of the femur is subluxated outward and backward.

The most noticeable deformity is at the knee.

As she lies here under chloroform the limb seems quite straight, but you see there is great lateral motion at the knee, and when I rotate the knee inward, and press upon the bottom of the foot, the head of the femur slips partly out of the socket, allowing a peculiar jerking motion. Now if I hold

the knee so that it cannot rotate or bend inward, you see I can make strong pressure upon the bottom of the foot without causing the luxation of the hip. The patient is a bright intelligent girl, and she tells me that she has worn a variety of braces, but that they all caused chafing and discomfort, until she has abandoned them altogether. She also tells me that the slipping of the hip is a new trouble and has only come on since the knee has grown so much worse.

The ankle is strong enough to bear her weight without turning if she can but step squarely upon it, and the hip slips only when the femur is rotated inward; therefore, I have concluded to excise this knee joint and in this way enable her to step squarely upon her foot, and prevent the bending and rotating inward.

I shall not use an Esmarch bandage, as I wish to close the wound without drainage, and the oozing will be much less afterwards if I do not use it. I now begin my incision well down on the inner side of the knee, and bring it over the patella, to the opposite side, cutting well down to the bone. I next bore four holes through the patella, two on either side of the line of incision, and saw through the bone. This leaves two holes in each fragment through which I shall pass a thread of cat-gut, and fasten them together. I now open the joint freely and remove the cartilage. I remove just enough from the tibia to make a flat, bony surface, to come in contact with a like surface of the femur. I now saw a slice of bone from the femur, taking a little more from the inner than from the outer condyle, because it is somewhat hypertrophied. I now fasten these two flat surfaces together with steel nails, and tie the fragments of the patella together. The outer wound is closed with cat-gut, and the dressings applied. Over the surgical dressings is applied a plaster of Paris bandage, extending from the toes to the body. At the end of one month I expect to remove these dressings and find good union throughout.

We will now adjourn to the City Hospital, where I shall perform this same operation upon a man thirty-five years old, for a deformity of the knee. This knee you all see is strongly flexed, and the tibia subluxated backward. The hamstring tendons were cut recently, but the popliteal fascia was so contracted that the limb could not be straightened. Since the cause of the deformity is a paralysis of the quadriceps extensor, dependent upon a central lesion, the straightening, if accomplished in this way, would only be temporary; but by stiffening the knee we can give this man a good serviceable limb.

I now make a transverse incision without the Esmarch, as in the other case. It will be necessary to shorten this limb more than in the other case, on account of the shortening of the soft parts in the popliteal space. After removing a thin slice from the tibia and fully an inch from the femur, you see it still requires considerable force to straighten the limb. I now make an incision through the skin of the popliteal space, bringing these dense bands of fascia into view. In this way I can accomplish with safety, what might be dangerous, if done subcutaneously, in this important anatomical region, with the anatomical relations disturbed as they are in this case. Now that these bands are cut, you see I can easily bring the limb into the desired position. I now close the wound in the popliteal space with cat-

gut, and proceed to nail the tibia and femur together. On account of the thickness of the section taken from the femur, the patella can be of no possible use, so I remove it and close the wound with cat-gut. There is such persistent oozing from the deeper parts of the wound that it will be advisable to introduce drainage tubes in this case, which is something I dislike to do, as it increases the danger of subsequent infection of the wound, and will necessitate an earlier dressing. The usual dressings are now applied, and over them a plaster of Paris cast from the toes to the body.

Two months after operation case 1 is able to walk better than before the operation and is improving rapidly. Case 2 is walking upon his leg and is delighted with the result.

SOCIETY PROCEEDINGS.

American Electro-Therapeutic Association.

Second Annual Meeting, held in New York, October 4, 5 and 6, 1892.

WILLIAM J. MORTON, M.D., PREST.

SECOND DAY, OCTOBER 5—MORNING SESSION.

(Continued from page 340.)

The authors conclude that the human organism is in no wise apparently affected by the most powerful magnets known to modern science; that neither direct nor reversed magnetism exerts any perceptible influence upon the iron contained in the blood, upon the circulation, upon ciliary or protoplasmic movements, upon sensory or motor nerves, or upon the brain.

While our observations with reversed magnetism indicate that no appreciable influence is exerted upon the brain when subjected to 280 magnetic reversals per second, we were unable to experimentally alter this frequency, and the possibility remains that some particular frequency or frequencies might affect the nervous system. We hope to decide this question, within a suitable range of frequency, at some future time.

The ordinary magnets used in medicine have a purely suggestive or psychic effect, and would in all probability be quite as useful if made of wood.

While we have demonstrated conclusively the above facts, we do not deny the possibility of there being invented some day magnets enormously more powerful than any yet known to us, which may produce effects upon the nervous system perceptible to some of the sensory organs; for magnetism is certainly a remarkable force, and we find it very difficult to understand why it seems to have no influence whatever upon the human body and its wonderfully delicate neuro-electric mechanism.

Discussion.

Dr. Hutchinson remarked that he thought he had read about some similar experiments before.

Dr. Brown said that during the past summer, he had seen some experiments by Dr. Louis of the Hôpital de la Charité, with a straight magnet, and a hypnotized patient. When one pole was pointed at the subject, she became angry; when the other pole was presented, she evinced signs of joy. Perhaps Dr. Hutchinson referred to these experiments.

Dr. Peterson said that he had carefully looked up the literature of the subject, and had found nothing of the kind with the exception of some experiments made by an American twenty or thirty years ago.

Dr. Rockwell thought just such papers as these were

needed, for it is equally important to tell us what a thing will not do, as to tell us what it will do. Many years ago, he had become much interested in magnetism, and had made many experiments with it. It had been stated that a worm could be killed with the negative pole of a magnet, but the only way in which he had ever succeeded in killing a worm with a magnet, was by crushing it with the end of the magnet.

Dr. Nunn rose to thank the authors for their admirable paper.

Dr. Herdman said he did not know of any series of experiments which had done so much to settle this vexed question about the utility of magnetism in medicine. He believed that wooden magnets had been tried, and yielded equally good results; hence, it would seem now to be definitely proven that magnetism has no therapeutic power, and what has been attributed to it is really due to hypnotic suggestion.

The President said he was with Charcot for six months during the time of his first remarkable experiments in hypnotism, but they had nothing to do with the present subject, except that Charcot denied vigorously that, in recent hemiplegia where the motor system was considerably demoralized, and the anaesthesia persisted, that the application of a magnet here produced return of sensibility in the hemiplegic. But we all know how easy it is for such a change to be brought about by various measures. He would like to ask if the authors had formulated any theory in their own minds to explain this fact that such powerful magnets are devoid of appreciable influence on living organisms.

Dr. Peterson, in closing, said that the experiments detailed in the paper, were undertaken with the largest known magnets, and with the idea of setting this matter at rest. They had formed no opinion as to the reason for their exerting no effect on living matter.

Mr. Carty said that he understood it had been asserted that magnetism exerted some influence on morbid conditions. It did not seem probable that it would have any such effect, but the strength of the paper would have been still greater if this point had received attention.

Dr. Peterson replied that in experimenting on pathological subjects, it would be impossible to shut out the influence of the mind, and hence such an argument would be unsatisfactory.

ELECTROLYTIC ACTION IN REMOVAL OF CERTAIN NEOPLASMS.

By Dr. Donald S. Campbell, B.A., M.D., Detroit, Mich. (Read by title.)

The achievements of electrolysis in the destruction and absorption of general neoplastic matter, wherever situated, have of late been presented with considerable force by various electro-therapeutic observers, as an electro-chemic agent of great value, which the more skeptical now admit.

But that it is capable of producing electro-chemic changes in every form of new formation, as in non-inflammatory growths, has not been clearly shown from the various clinical statements thus far reported. And that it is capable of inducing chemical changes in morbid organic structures, am impressed with a doubt. But the time may soon arrive when we may be able to combat them as readily as we can a common inflammatory growth. Yet are we sufficiently acquainted at present with the quantity of electrical dosage required to disturb and arrest the development of morbid fungi, without inducing increased manifestations of their functions and growth? Since the inflammatory new-formations are chiefly caused by some chemical or mechanical injury, the process of growth usually ceases on their removal; while in the non-inflammatory growths, where a sort of special predisposition of the tissues exists, to enable

these irritants to excite their development, a wide difference of tissue character is exhibited, which apparently defies every powerful remedial agent at our command to eradicate. Indeed, the fact remains, that on each and every excitement, their functional developing properties generally increase. But, since electrolysis has proved itself to be a powerful destroying agent in all classes of inflammatory growths, and an agent of exceedingly rare value in every form of chronic hypertrophied conditions, we may assume, at least, that it is capable of combating morbid organic matter, though some of our best electro-therapists construe differently. However, for sake of argument, based upon my own observation, I will briefly report one of the most favorable cases which happened to come under my notice, as a fair test of the capabilities of electrolysis, as a chemical absorbent of morbid organic structures:

A Mr. G., fifty years of age, of good family history, German extraction, resident of Detroit, occupation liquor dealer, consulted me two years ago last May, for difficulty of breathing. He complained of some pain, but did not experience any difficulty in swallowing. His body appeared well nourished, with no evidence of either a cancerous or tuberculous cachexia.

The difficult breathing came on gradually, and began to manifest itself about four months previous to his consulting me, until he found it almost impossible to assume a recumbent position. At this time I made a careful examination of his throat by the aid of the laryngoscope, and discovered a rather large swelling in the free extremity of the epiglottis, which interfered considerably with its vertical action during respiration. In concluding the examination, and after giving him the actual facts of the case and its probable outcome, I advised him, after his refusal to surgical measures, to try, as the next best thing, electrolysis, to which he consented. A negative puncture was made in the centre of growth, with steel needle, under maximum strength of 50 milliampères, for five minutes' duration. This was repeated at intervals of four days for two months, but to no satisfaction; for though the abnormal tissues actually shrunk immediately around the points of the punctured parts, the growth gradually increased around them, and to other portions of the tumor, as well as to encroach upon the subjacent tissues. The positive puncture was next resorted to in the same manner as the negative, but with no better results, though I fought manfully to stay the progress of the disease; but all to no purpose. Steadily it advanced until all the tissues of the throat became involved, resulting in death three months after he received the first treatment. Now, as I claimed in the outset that it was doubtful whether cancerous disease could be destroyed by electrolysis, however mildly the current might be applied, as such diseases are not amenable to the continued use of irritants. Indeed, I endeavored to the best of my ability, to stay the progress of the disease in this case,—being such a favorable one for a fair test of the merits of electrolysis,—but was thwarted in my earnestness of purpose, as I have been in all my other cases, to accomplish the result. Yet the time may arrive when we will be able to contend against every form of malignancy, by the employment of galvanism, but not until then can I have faith in its chemical resolvent properties, in that class of new-formations. But the scientific truth still remains, that the skepticism of electrolysis in abating an inflammatory new-formation, "has largely given way to confidence and to calmer judgment."

Now that which I have stated in a former paper, on the philosophy of electrolytic action, in the destruction and absorption of inflammatory deposits resulting in new-formations, is, conservatively speaking, established to-day, viz.: that, if electrolysis is intelligently administered, it facili-

tates the destruction and absorption of various neoplastic growths, erectile tumors, lymphatic enlargements arising from interstitial deposits of lymph, and other structural abnormalities arising from organized inflammatory matter, better and safer than any other remedial agent at present known. For, clinically speaking, the results which we have obtained from its employment are sufficient proof of its successful and enduring qualities.

In that class of glandular growths, called adenomata, where the tissues composing the follicles of the lymphatic glands are, by reason of certain mobile cellular elements of their endothelium, materially increased by an abundant emigration of white blood corpuscles, which steadily develop into abnormal proportions, by a distinct uniformity of functional activity, the use of galvanism is clearly indicated; for it has proved itself capable, to my entire satisfaction, in over one hundred cases,—and to every other electro-therapist, in destroying and absorbing abnormal glandular structure, when properly administered, without producing the slightest irritation to the surrounding tissues, or any inconvenience to the patient.

Now the clinical field from which I have carefully noted these facts, by observing the effect which electrolysis had upon adenoid vegetations, was chiefly confined to the mucous surfaces of the upper air passages, viz.: posterior nares, vault of pharynx, larynx, base of tongue and tonsillar regions. And though the use of the stronger astringents, like perchloride of iron, iodine, chloride of zinc, etc., or the direct application of caustics, or the galvano-cautery, have been successful agents in destroying such fungosities, yet the fact remains, that their operations are always tedious and frequently irritating to adjacent structures, whereas in the electro-chemic method, decomposition of the growths occur almost immediately after the first sensible negative puncture, without disturbing the surrounding healthy tissues, and usually do not require more than six of them, on an average, to complete their destruction, under current strength varying from three to twenty-five milliampères only, for at the most ten minutes duration. Indeed, all things considered, am fully justified in endorsing it as an agent better adapted to suit the wants of the occasion than any medical or surgical device we are acquainted with, notwithstanding the splendid achievements I have obtained from Prof. W. C. Jarvis' wire éraseur. This instrument, of course, is available when the growth can be secured by transfixing needles, as in hypertrophies and polypi of the turbinate bodies and myxo-fibromata of vault pharynx, etc., where they are frequently located. But where the growth cannot be properly extirpated by either the crushing or cutting process, without injuring important structures, or where a surgical procedure would be highly proper, but cannot be performed on account of the location, as on the posterior surfaces of the turbinated bones, superior portion of the posterior surfaces of the soft palate, or when situated on any portion of the tissues of the larynx, especially if they are vascular at all in character, nothing can accomplish their removal so handily or so safely as the electro-chemic puncture, providing the current is sufficiently intensified to suit the demands of the case. As an illustration of this, I will briefly report a case that happened to come under my notice, which in my mind demonstrates the conformity of this statement.

Mr. G., an employe of a manufacturing enterprise of Detroit, forty years of age, of good family history, was brought to me for treatment three years ago last September, for aphonia. He began to lose his voice about four years previous to his consulting me, shortly after suffering from a severe attack of laryngitis. It gradually grew worse until he lost his speech entirely, which occurred about a

year afterwards. During this time he had been treated by his family physician, but subsequently gave way to a throat specialist. The latter physician discovered the existing trouble, which proved to be a series or cluster of adenoid growths, arising from the mucous surfaces of the ventricular and inferior portion of true vocal bands, preventing them while in a state of vibration, to approximate. His treatment consisted chiefly of the spraying of both mild and strong astringents to the cavity of the larynx, twice a week, and occasionally with the direct application of caustics. He was treated in this manner for about three years, and although a slight reduction of the size of the laryngeal growths took place, no perceptible change in his voice occurred, showing that they interfered still with the true vocal bands. This was the condition of his larynx when I first examined him, with the exception that the general mucous covering of the various bodies of the larynx appeared thickened, congested and granular, as if they had undergone severe punishment from the long continued use of irritants. From this history of the treatment he received, I was fully convinced of the uselessness in again resorting to the use of astringents, however mildly they might be applied. So then, I tried faithfully to snare the growths with Jarvis' Ecraseur. This I found was utterly impossible to accomplish, after several repeated attempts, owing to their having such a broad base, and to the super-sensitiveness of the immediate surrounding tissues to the wire loop, even when local anesthetics were freely used. I then concluded to try Electrolysis in the following manner, viz: The cavity of the larynx was first rendered aseptic by a warm spray of Dobell's solution, then thoroughly anesthetized with four per cent. solution of muriate of cocaine. A negative puncture was next made with a laryngeal needle (perfectly insulated) at the base of one of the growths. This was maintained in that position for about five minutes, under a current strength varying from five to thirty milliamperes, when it was suspended for a week. At the end of this time it was examined and found to be considerably shrivelled immediately around the punctured part, and changed from a pink to a dark muddy hue.

A negative puncture was again resorted to, in the same manner as before, with similar results, but with much better effect,—the growth was almost entirely obliterated a week following this treatment.

The remaining neoplasms were treated in like manner separately, although they did not require more than three electro-negative punctures to thoroughly destroy and absorb them. Yet I made on an average, six, with an intensity of current varying from five to thirty milliamperes, for about six minutes duration, to warrant their absolute absorption. And although it required about a year's steady treatment to absorb these growths, the success attained by electrolysis is sufficient evidence of its absorbing influence, and also being more reliable and safer than any of the other agents which were so faithfully used without obtaining fruitful results.

The patient's voice was restored just as soon as the growths were removed from the vocal apparatus, and has remained so up to date, with no evidence of the recurrence of the glandular tumors, proving that the electro-chemical treatments were perfectly successful and satisfactory, and better adapted in removing this class of structure—including also the angiomata and papillomata varieties, especially of the mucous structure of the larynx, than any medical or surgical procedure at present known.

Now in regard to simple hyperplasias and fibromata, which properly belong to that class of new formations which are characterized chiefly for being independent of any active inflammatory process, having the virtue of devel-

opment and growth in their own activity, a vast difference of tissue character is displayed between them and the inflammatory growths. The former are generally hard and firm of texture, encapsulated, and contain but few blood vessels; while the latter are, as a rule, more spongy in character, consisting of numerous small sacculi, lined with several layers of small epithelial cells, grouped together, and separated merely by connective tissue, in which ramify numerous small blood vessels; showing that the movements of the fluids from the positive to the negative punctures can be carried on more readily and in larger quantities, producing thereby greater disturbance of the functional capacity of the proliferating cells, on account of being deprived so suddenly of their nutritive supply, than in the firm fibrous tissue growths, under similar intensification of current. Indeed, my experience thus far has been that, as growths vary as to their natural vitality and composition, as is observed so markedly between these varieties, the electrical dosages will invariably vary correspondingly. Those of non-inflammatory origin have greater resisting power than the inflammatory, and require longer, steadier and more highly intensified current to cause their retrogression. For as abnormal structures of fibroid character possess in no small degree the tenacity of the natural cell—both consisting of a homogeneous mass of wavy interlacing fibres of ultimate strength and vitality—it is reasonable to suppose that a greater intensification of electrical fluid is required to disturb their functional capacity, than those constituting the angiomata, papillomata, adenomata, etc., though their conductivity may be nearly equal. As an instance of this, I have in mind a dense fibroid growth of vault of pharynx, of medium size, in which thirty electro-negative punctures were made, of a highly intensified current, varying from twenty-five to fifty milliamperes, as strong as the patient was able to bear, for fifteen minutes' duration, before a sensible reduction of the growth occurred; whereas a feeble current of a maximum strength of fifteen milliamperes only, on several large adenoid fungosities of posterior nares, did not require, on an average, more than eight, for at the most, five minutes' duration.

Another reason why abnormal fibrous tissue require more intensification of current to arrest their development than those just enumerated is their indifference to the cataphoric action of electricity, an essential physical principle necessary to aid chemical decomposition. This, of course, is due to the poor vascularity and to the presence of a very small amount of saline and neutral fluids which they contain. But no one can fail to realize that more depends upon the absorption of the liquid matter contained in any diseased structure, whether it has to be extracted directly from them or not, than to electrolytic action, though it is acknowledged it interferes with both the vital and chemical energies of living cells. Yet it is certain this osmotic action, or transportation of liquid particles from the positive to the negative pole, in which the elements of the tissue growths are bathed, lay the cellular substances in the electrolyte open to chemical decomposition; for, just as soon as functional activity of cell life ceases by any process, its existence is cut off by the execution of chemical laws. Hence in electrical osmosis we know definitely its accomplishments, that of accumulating saline and other fluids, the essential elements which convey the nutrition and support the metabolism of the diseased cellular tissues, around the negative terminal, thus facilitating the action of chemical decomposition and absorption.

Recognizing the importance of this fact, let us take as a clinical illustration of the actual merits of the galvanic current, based upon a series of careful electro-negative punctures, a typical case of fibroid growth of the superior por-

tion of the pharyngeal wall, which happened to come under my notice. I began first with a five minutes current application of ten milliamperes every fourth day for about a month, but with no appreciable difference in its size or appearance. I then applied a stronger current, 20 milliamperes for about eight minutes, twice a week, with same number of treatments, yet with no better results; no change whatever occurred in the growth to denote its retrogression. A much stronger current was next administered, beginning first with twenty milliamperes, gradually increasing it to forty for about twelve minutes' duration; the effect of this highly intensified current was immediately recognized. Around the negative needle a continuous current of gaseous bubbles occurred, which rapidly developed into a watery fluid, showing, of course, that the fluid secretions of the tumorous structure itself was being transferred by electrical osmosis from the positive to the negative pole. The appearance of the growth a few hours afterwards was dark, congested and swollen, which remained for about twenty-four hours, and which exuded still from its punctured surface a thin red watery secretion. But one week following this non-inflammatory phenomenon the tumor looked very dark in color, reduced in size, glazed and somewhat shrivelled in appearance, especially around the punctured part, without the slightest evidence of any inflammatory irritation in the neighboring tissues, or of suppuration of the growth itself.

The negative punctures were again resorted to, but at regular intervals, twice weekly, with similar current strength and time, and with results corresponding exactly with the effect which the first sensible current made upon it,—only more pronounced—until it was completely absorbed.

Now it is certain that the transmission of highly intensified currents through hypertrophied or other abnormal dense structures—like those comprising fibroid tissue growths—without exciting them to inflammatory action, are met with much greater resistance than in the vascular inflammatory growths. But whenever their resistance is overcome by the electro-chemic force, osmotic action immediately takes place, as it does in vascular growths with the feebler current, by absorbing the liquid substances in which the tissues are bathed, and indirectly from the tissues themselves, after the cellular elements are transposed into their original fluid constituents. This of course interferes with the circulation of the blood considerably through these structures, which naturally curtail their usual supply of the nutritive properties; thus making easy the way for their destruction by the action of chemical decomposition.

These few explanatory points, obtained from personal experience, may enable us to perceive the quantity of galvanism necessary to disturb any of the enumerated varieties, without interfering with the natural tissues. And though the myxomata, myomata, myxo-fibromata and fibromata, are quite amenable to electrolytic action—all of which are dense, non-vascular and of a highly organized character—they require longer, steadier, and a much larger quantity of electro-chemic force, to disturb them, than the vascular varieties of inflammatory origin. Indeed, the chief annoyance we frequently encounter with fibroid tumors, is the time expended in giving the current its proper electro-current tension, and the slowness with which they are dissolved or decomposed. For this reason I prefer the employment of Jarvis' wire écraseur, providing they can be transfixed without much difficulty. But in the complete destruction and absorption of every form of vascular growths of inflammatory origin, no other agent or kind of treatment can compare with it in mildness of execution, safeness, rapidity and reliability. Yet as the old saying goes, "the proof of the pudding is the eating thereof," I will for sake of elimi-

nal evidence, enumerate in a brief tabulated form the several varied cases of tumorous obstruction of the upper air passages I have treated since 1887. Each variety is separated from the others, and taken collectively, with average duration of sittings, average electrical dosages, and quantity of current tension, with the results obtained:

Nature of Growths.	Number of cases.	Average time employed in each electro-negative puncture.	Average number of treatments.	Average current tension given in milliamperes.	Results of Treatment, with Remarks.
Adenomata—					
of larynx	12				
of pharyngeal wall	15				
of vault of pharynx	19				
of posterior nares	14				
of posterior surface soft palate	6 M				
of tonsillar regions	25 4½	10	18		All removed, with no evidence of their recurrence.
Papillomata—					
of larynx	4				
of back and side of tongue	8				
of soft palate	7				
of palatine arches	8				
of roof of mouth	6				
of external ear	3				
of mucous structure of cheeks	5 M	4	6	16	All thoroughly destroyed by chemical absorption.
Fibromata—					
of posterior nares	16				
of vault of pharynx	12				
of pharyngeal wall	3				
of posterior surface soft palate	2				
of base of tongue	2 M				
of summit of epiglottis	1 7½	28	36		All thoroughly destroyed, with no evidence of their returning.
Malignant disease—					
of epiglottis	1				
of superior portion of the gullet	2				
of vault of pharynx which occupied posterior orifices too	2				
of lower lip	1 M				
of side of tongue	1 7	35	38		Results very unsatisfactory. At no time did electrolysis appear to stay their progress, however mildly the current was given, with sufficient volume to induce structural change. Death occurred in each case, after giving galvanism a good trial and an honest test.
Hypertrophies—					
Of inferior portion of turbinate bodies	35				
of middle portion of middle turbinate	10				
of posterior portion of superior turbinate	10 M	6	22	25	All reduced to their normal condition.
Nasal polypi—					
of nasal tracts	30				
of external ear	5				
of lower portion of pharyngeal vault	2				
of superior portion of gullet	2 6	20	18		All destroyed by complete arrest of the blood supply by passing the needle, highly electrified, through their base from which they obtain their nourishment.

You will observe from this brief tabulated report, that I have confined myself wholly to the operation of electrolysis on affections pertaining to my special work, viz.: diseases of the upper air passages. So it is just to concede that a fair test was made in order to know its exact accomplishments in each stated variety. And though the variations of the number of electrical dosages, even in same character of disease, are noticeable, they are chiefly due to the idiosyncrasies of the patient, and to slight difference in the vascularity of the growths; some offer greater resistance than others. But just as soon as the electrical force was sufficient to induce a decided hyperæmia in either case, osmotic action took place, which deprived the parasitical cellular substances of nutritive support, resulting in their death and ultimate chemical absorption. Indeed, it is very difficult—yes, almost impossible, to approximate a uniform system of electrical treatment. We have to determine from personal clinical experience the amount of electrical force

required to establish chemical changes in the pathological lesion. And that which I have stated in a former paper are facts that no electro-therapeutist can dispute, that "no rule can be laid down for either the experienced or inexperienced, though the former, from a much wider observation, can detect its primary impression sooner, and utilize its resolvent properties to better and safer advantage."

DISCUSSION OF THE RELATIVE FETICIDAL VALUE OF THE GALVANIC AND FARADIC CURRENTS IN ECTOPIC GESTATION.

The participants were requested to specially emphasize the following points:

1. How does electricity destroy the life of the fetus?
2. Which current should theoretically be more certain in its results, and what is the individual experience?
3. Can electricity be depended upon to accomplish the desired end? And why?
4. Should the galvanic current be used interrupted or constant?
5. What is the best method of applying the agent?
6. What are its dangers? And how are they to be avoided?
7. Who should apply it? Can it safely be trusted to the general practitioner?

Dr. Rockwell, in opening the discussion, said that the manner in which death is produced is an endless field for discussion. We know that in executions by electricity the heart is at once paralyzed, and various post-mortem examinations on those dying from the effects of electricity had shown that the heart contracts with such tremendous force as to cause even rupture of its blood vessels. From our theoretical knowledge of the action of the different currents of electricity, he would say the galvanic current was to be preferred for the destruction of the fetus, for it does not kill simply by mechanical action, as the faradic current does, but it develops heat, modifies endosmosis and exosmosis, and produces various other effects which have an important bearing upon this subject. His experience also led him to prefer the galvanic current. He had treated twenty-three cases of extra-uterine pregnancy by electricity, and in every case, except one, with satisfactory results. In that one the patient died, not because of, but in spite of the electricity, for the attending physician admitted that there had been a slight rupture previous to resorting to the electricity. Operative surgeons say that they would rather use the knife, but perhaps if it came to the treatment of some one in their own families they would have a different opinion. He had known of many cases in which the faradic current had been used, and it had been necessary to repeat the application as many as ten times before it was evident that the fetus was dead, and these patients suffered much more than they would have done with the galvanic current. His custom was to treat a case three or four times, but he believed that one application would always kill the fetus without the slightest pain or danger to the mother. There is, of course, the possible danger of rupture of the tube. His method was to quickly increase the strength to the desired point and interrupt it several times, then as quickly decrease it again. But where great caution is necessary he employed the continuous current without interruptions. The beauty of this treatment is its simplicity, and therefore, it can not only be, but should be attempted by the general practitioner. A few years ago, at a meeting of the American Gynecological Society, one of the most eminent electro-therapeutists in the world made the astounding statement that *electrolysis* was to be employed in this treatment. The speaker, continuing, said he had also used voltaic alternatives, but considered interruptions much more efficient.

Dr. Malcom McLean, of New York, said that although his experience had not been large, the results had been definite, and the cases, he thought, had been carefully observed. He

considered that the life of the fetus was destroyed, not by the current acting directly upon the circulation of the fetus itself, but on the extremities of the chorionic villi, and if this fact were borne in mind it would help the surgeons to come to some conclusions concerning this method of treatment. Although the purely mechanical effect of the faradic current is sufficient to destroy the life of the fetus, he preferred the galvanic current, on account of the mysterious changes which it produces in the tissues, and its positive action on the chorionic circulation. The question as to the reliability of the method he answered most emphatically in the affirmative, providing the treatment were carried out at the proper time, in the proper manner, and in the proper cases, after making a proper diagnosis. This treatment should be resorted to before the chorionic villi had emerged into placental tissue, for then the condition is unsuitable for electrical treatment. He had tried both the interrupted and the constant galvanic current. If the pregnancy had advanced beyond the twelfth week, and caution was necessary, he would employ the constant current in the manner described by Dr. Rockwell. He places the clay electrode over the abdomen on the side where the ovum is located. The vaginal electrode is a brass ball surrounded by clay, and enclosed in a wet chamois leather bag, which is placed well up in the vagina behind the uterus. One thorough application should be sufficient, but as a precautionary measure, he usually repeats it two or three times. It is easier to say what dangers do *not* exist, than those which do, for he saw no reason for any more danger from this treatment than from any other manipulation, as of a speculum. He was well acquainted with the fatal case reported by Dr. Rockwell, and he was satisfied that the rupture had taken place before this treatment was instituted. Any practitioner who is able to make a correct diagnosis of ectopic gestation, and who can place the electrodes in proper position, is qualified to undertake such treatment. The important point to remember is, that the electricity destroys the ovum, not merely the fetus inside of the ovum. The speaker then exhibited a small fetus, as an illustration of the absurdity of the argument against the electrical treatment of this condition, that the fetal remains may act as a dangerous foreign body.

The president asked for further details in regard to his theory of the manner in which the death of the fetus is produced.

Dr. McLean replied that while he could not prove his position, he felt sure in his own mind that the death was due not so much to the effect of the current on the nervous system, as upon the circulation, inasmuch as the life of the child is closely dependant upon the chorionic connection with the mother. The vitality of the fetal envelopes was also destroyed, hence, it was impossible in the early stage at least for a foreign body to be left. Only a few weeks ago he exhibited before the New York Obstetrical Society a patient whom he had treated successfully by electricity for an ectopic gestation, six months before this, and three experts failed to find any trace of the fetus.

Dr. Goelet, of New York:—I believe electricity destroys the life of the fetus when the faradic and also when the interrupted galvanic current is employed by the shock it induces producing paralysis of the heart muscle. It is also probable that the contractions induced in the muscular structure surrounding the fetal sac by compression of the feeble fetus will cause arrest of the heart's action. The current likewise produces a profound disturbance in the fetal circulation owing to the compression of the nutrient vessels of the chorion, and at a later stage, those of the placenta. It is known that contractions of the uterus at term will retard and even arrest the action of the heart of

the fetus at that age. How much more susceptible the fetus of only two or three months' development must be to such influences. Dr. Lusk, in his excellent work on obstetrics, says (page 87) "At the beginning of pain (uterine contraction), especially after rupture of the membrane, the heart sounds often become more frequent; on the other hand they become slowed during the height of the contraction and may even for the moment cease altogether, either in consequence of the compression of the child's body or as the result of the disturbance produced in the placental circulation. If at any time the frequency of the heart beat permanently, either rises above or falls below the normal average, the child's life is to be regarded as endangered." Authorities state that the heart becomes functionally active by the third week of gestation,¹ but the action must be feeble and easily arrested even as late as the third month. It must be considered also that the fetus is more exposed to outside influences in the tube than when surrounded by the firm muscular structure of the uterus; that in the first instance the gestation sac lies close to the vaginal wall with very little tissue intervening between it and the surface of the vagina. Hence very little resistance is encountered by the current, at this point at least.

2. The faradic and the galvanic current when interrupted should, I think, possess greater foeticidal power than the constant galvanic current. Just how the constant current destroys the life of the fetus, if it does, I am unable to decide. If the faradic current is used I believe a positive result may more confidently be anticipated if either the primary current or that derived from the short coarse wire coil is employed, because the volume of these currents is greater and the impulse imparted is more profound. In two cases of my own, one of which has been reported, the interrupted galvanic current was employed with satisfactory result in both instances.

3. I believe that electricity, if properly employed, can be depended upon to destroy and prevent the growth of the fetus (extra-uterine). My reasons have been stated.

4. The galvanic current should, I think, be used interrupted, until it can be more definitely proved that the constant current is absolutely reliable for this purpose, or it can be shown how its action can destroy life.

5. In order to increase its effectiveness and render the result more certain the current should be concentrated upon the mass containing the fetus, and for this reason I believe the best method of application is with one pole against it in the vagina, and the other introduced into the rectum and passed up beyond the mass so as to include it directly between the two. In this manner not only is it possible to use the current more concentrated, but the resistance is very considerably diminished and both poles are brought closely into relation with the gestation sac. Confining the action of the current to the location where its action is required is always a point to be desired, and in this instance is particularly important.

I believe likewise, that when the faradic current is employed, either the primary current or the secondary current as obtained from a short, coarse, wire coil will be more effective for the reason stated above.

6. The dangers of the method appear to be more fancied than real, since no untoward result has been reported directly attributable to the use of electricity. Rupture of the tube is possibly a result which, theoretically, might be anticipated from the nature of this treatment, and one which those who favor primary laparotomy contend is always imminent, but as no such result from electrical treatment

has yet been reported in the large number of cases recorded theoretical objections should have no weight. If such danger is, however, recognized, and it is true it cannot be absolutely denied, then care in its administration is the surest safeguard in employing electricity for this purpose. And this leads up to the answer to the seventh question, who should apply the remedy?

7. Certainly one who is thoroughly familiar with the agent, and understands the action of the different currents, is best qualified to administer it when once a correct diagnosis has been reached. At the same time, however, a familiarity with the female pelvic organs, and how much interference they will tolerate when diseased, is essential both for the safety of the patient and the reputation of the remedy. The general practitioner may be competent to make a correct diagnosis and may be qualified to do the operation, but it is undoubtedly true, that he is disqualified through lack of sufficient experience with such cases, which are rare.

Dr. A. Brothers said that years ago, Dr. Lenz pointed out that the fetus was destroyed by the direct shock, and by interference with the chorionic circulation, and he proved his position by experiments on small animals. The later experiments of Martin confirm this view. The speaker considered the galvanic current most effective, but in a series of forty-three cases which he collected, and published some years ago, twenty-one were treated by faradism, sixteen by galvanism, two by both forms, one by franklinism, and in one, the method was not stated. His own experience was limited to one case, and in this one the faradic current was employed. The pain was very intense, requiring the administration of morphine. The electrical treatment was therefore a reliable one, but it is preferably conducted under anæsthesia, and if the faradic current be used the application should be repeated a number of times. In one of the early reported failures Braxton Hicks used the faradic current once only, and becoming discouraged he punctured the cyst, and lost his patient. The interrupted galvanic current is theoretically the proper one, unless there is imminent danger of rupture of the tube, and the simplest method is to use a large flat sponge on the abdomen, and a vaginal electrode placed directly in contact with the mass. He saw no special advantage in introducing the electrode into the rectum. Danger could be avoided by a proper selection of cases; thus, Janvrin's fatal case had exhibited symptoms of rupture before the electricity was applied. After hæmorrhage has begun we have no right to use electricity; but granting that there is no hæmorrhage, and that gestation has not proceeded further than the third or fourth month, electricity should be tried before resorting to laparotomy. The best answer to the last question, was that he was himself a general practitioner, and yet he had saved one patient.

Dr. A. F. Currier said that while a believer in the utility of electricity in many conditions, he also believed that its field was quite a limited one. Ectopic gestation is a most terrible accident, and it is more frequent than has been generally supposed. It demands very certain and radical measures. Undoubtedly, during the first few weeks, the galvanic current would be indicated, but it is just at this time, that the diagnosis is so very doubtful, so that having employed electricity we cannot be sure that the case ought to be counted as a success for the electrical treatment, because we are not certain that ectopic pregnancy really existed. On the other hand, a current which would be strong enough to produce contractions, would also expose the patient to the danger of rupture of the tube. Simple rupture of the tube and extrusion of the fetus into the abdominal cavity, are not the only dangers, for granting that the fetus has been killed in these cases in which hæmorrhage has occur-

¹ Preyer (Parvin's Science and Art of Obstetrics, p. 143) says it cannot be doubted that the heart begins to beat at the beginning of the third week.

red, there is still a quantity of material left behind which may give rise to sepsis, so that the patient has escaped one danger only to fall into another. For these reasons, if the gestation were beyond the first month, he would be unwilling to subject the patient to anything except a laparotomy, and the records of operative cases show a very large percentage of recoveries. In his opinion we are subjecting the patient to unnecessary danger by using an agent which at best, is uncertain, both in its immediate consequences and in its ultimate results.

Dr. Goelet said he did not mean to imply that every general practitioner was disqualified, but only that in view of their necessarily limited experience only those should undertake this treatment who live remote from medical centres.

Dr. J. H. Gunning found in experiments on rabbits, that when the skin of the abdomen was removed, and the current directly applied to the cervix, a vermicular action was produced a contraction beginning at the positive pole and spreading to the negative pole—and when kept up for a sufficient length of time portions of membrane were detached from the uterus. These experiments led him to conclude that the interrupted current was the better one, and that much danger would be avoided by its uses, on account of this special action on the tube. It seems also to have a tendency to start the ovum towards the uterus. There are more cases of death produced by the knife than by electricity, and he thought that when employed in the early stage, electricity was one of the most satisfactory and harmless agents at our disposal.

The President said that Dr. Gunning's experiment was an exemplification of the electro-physiological law of contraction of muscle. A continuous current cannot produce a contraction of muscle by acting upon the nerve; it produces simply a condition of diminished excitability of the nerve, but it can produce a contraction if applied directly to the muscle, particularly if the muscle be unstriated, in which case the contraction will be vermicular. This was important to bear in mind in the discussion.

Mr. Carty said he wished to touch upon the effect of electricity when considered apart from the body. If two electrodes were directly touching the body upon which we desire to act, by raising the potential, the mechanical attraction between those two plates would be correspondingly increased, and it was conceivable that a sufficiently high potential might be employed to actually crush out life. With an alternating current of proper potential and proper interruptions it would be possible, without metallic contact, to kill a live organism placed between these plates. In the human body, we must consider the intervening space between the point where the electrode touches the body, and the fetus. If the muscles act as condensers, as has been stated by some authorities, an alternating current would be necessary. The oxygen and hydrogen freed as a result of the electrolysis produced by the current, would tend to re-unite and would produce some mechanical or chemical effect. He hoped that these remarks, from the standpoint of the physicist, might serve as a guide to medical men in their investigations.

Dr. Brothers said that the chief argument used by Dr. Currier against the electrical treatment was, that something dangerous was left behind in the abdomen after the death of the fetus. The speaker had communicated with all those who had reported cases of extra-uterine pregnancy treated in this way, asking for a report on the condition found after considerable period. Twenty-five cases are thus traced, the period at which the later examination was made varying from two to ten years after the electrical treatment. In a very large number of these, the mass had

entirely disappeared, in all the others, it had greatly diminished in size, and in not a single case was a secondary laparotomy necessary for the removal of the mass.

Dr. Hahn remarked that nothing had been said about the dosage of the current.

Dr. Goelet said that Martin found in his experiments with eggs that when a constant current of twenty milliamperes was used for five minutes it was sufficient to kill "the chicks," and the speaker thought if the galvanic current was interrupted, twenty milliamperes should be sufficiently strong for the treatment of extra-uterine pregnancy. The faradic current should be used as strong as can be borne.

Dr. Goelet said he had written an article advocating the use of bare metal electrodes, both in the vagina and in the rectum. With a current of twenty milliamperes, for a short time they were not harmful, and the effect was better.

Dr. Gunning said he used a current of fifteen milliamperes.

Dr. Hahn said he would distrust very much the efficiency of a current of fifteen milliamperes, for the reason that he had made a negative intra-uterine application of forty milliamperes to a lady not known at the time to be pregnant, yet she was delivered of a living child at the seventh month, or about five months after this treatment. Only the one application was made, as his suspicions were aroused.

Dr. von Raitz said that he had twice made this mistake. In one case a girl of 27 years came to him complaining of pain in the hypogastrium and slight fever, with an offensive vaginal discharge. She admitted the possibility of pregnancy but there were no signs of this condition. The pain continuing he felt sure, if pregnancy were present it must be associated with some pathological condition, so he felt justified in interfering. The negative pole covered with absorbent cotton and moistened with a solution of bicarbonate of soda was inserted into the cervix and the positive pole was placed over the tumor. After about ten treatments the discharge subsided and she felt enough better to resume work. Four weeks later she aborted and the appearance of the fetus indicated that the pregnancy had reached the tenth week. He asked if the abortion was due to the treatment or not. In the second case, occurring under similar circumstances in a married woman, the patient was troubled with leucorrhœa. He made five negative intra-uterine applications of about ten minutes' duration, with a current of fifty to seventy milliamperes she then had a very alarming hemorrhage. In another case at the fourth month, in which he advised the induction of abortion, the faradic current was applied twelve different times and proving unsuccessful resort was had to the bougie.

Dr. Rockwell, in closing the discussion, said that he had hoped that all would agree that the galvanic current was the best for the treatment of extra-uterine pregnancy. When he first employed this method it was before the milliamperemeter came into general use. He used fifteen to twenty cells of battery with interruptions as powerful as could be borne, and the results were quite as good as those obtained subsequently when by actual measure the current was shown to have a strength of fifteen to thirty milliamperes. Large electrodes should be used in order to diminish as much as possible the external contractions.

Before reading the next paper, Dr. Goelet exhibited a vaginal bipolar electrode which is self-retaining, and does not require the constant support of the hand during the application. This is accomplished by making the handle or shaft shorter and lighter than that portion of the instrument which is inserted in the vagina. The shaft is likewise made smaller than the vaginal portion, which allows the instrument to be grasped and retained by the contractions of the sphincter vaginae under the stimulus exerted by the influ-

ence of the current. Bipolar faradization which consumes much time is thus greatly facilitated.

THE TREATMENT OF SALPINGITIS BY DEPLETION AND DRAINAGE,
SECURED BY ELECTRICITY.

By Dr. Augustin H. Goelet, of New York.

In a recent discussion at the New York Obstetrical Society evoked by the writer's report of several cases of salpingitis successfully treated by electricity after laparotomy had been thought necessary, there was an evident disinclination to attribute any of the good results obtained to the agent employed, and the *rationale* of the treatment adopted was questioned. As sufficient time was not then allowed for a satisfactory explanation of the *modus operandi* of its action, I will endeavor here to throw some light upon this point, and clear up some of the mysticism which is supposed by some to surround this agent and the work of those interested in its advancement. I had thought that my previous contributions upon this subject were sufficiently clear to, at least, spare me the accusation of surrounding my methods with mystery, but I see I have either flattered myself or else I have been intentionally misunderstood.

The necessity for this explanation will be rendered more apparent, if I state some of the objections raised to the claims made in the report referred to, and some of the measures urged as equally satisfactory. One speaker thought that the advocates of electricity erred by making the subject so complicated, and full of mysticism, that it led many to lose faith in it, and even to ridicule it. The same gentleman was puzzled to understand why the different forms of electricity can be so interchangeably used and produce the same results. That if the negative pole in the uterus and the positive pole in the uterus both relieve the pain, as he understands it, what is the use of complicating matters by using the faradic current also. He thought the way to popularize electricity with the profession was to simplify it. It is a wonder this gentleman did not employ a substitute when he wanted to study medicine. If he has neither the inclination nor energy to study and understand electricity as others have had to do, he should at least, be willing to withhold an opinion upon its merits. His embarrassment reminds me of the Frenchman who could not understand the American mixed drink:

"A little lemon to make him sour,
A little sugar to make him sweet,
A little whisky to make him strong,
A little water to make him weak.
What you call dat?"

His deductions regarding the complications of the subject, and his ideas of the indiscriminate use of the poles and action of the different currents, have originated in his own imagination as the result of an incapacity to understand it clearly without some thought and study. Strange, is it not? Because a man knows a telephone when he sees it and knows how to talk through it, is no evidence that he comprehends the principle of its action, nor is it any guarantee that he can acquire such knowledge without some investigation. If those gentlemen who find so much mysticism surrounding the subject would study electricity, learn the principle of its action and take the trouble to understand it, the mysticism would disappear. If anything more is required in reply to this criticism, it may be covered by what I will have to say farther on.

Another speaker thought rest in bed and hot water would do all that had been claimed for electricity in these cases, and that it was equally prompt and satisfactory for the relief of pain, in spite of the fact that in several of the cases reported, and notably in one case, this had been faithfully employed without decided benefit, and as a last resort, laparotomy had been advised for the removal of the offending organ.

My diagnosis was questioned by another, who did not appear to comprehend that the cases had been selected for reporting because a diagnosis sufficiently serious to render laparotomy necessary had been made by other gentlemen, before they came to me for treatment.

Another speaker thought the time involved, together with the rest and care of the general health, was as much responsible for the result obtained as the remedy employed. In reply to this I will state that none of these patients were confined to bed while taking this treatment, nor even to the house, but came to the office for treatment; and so far as the time element is concerned, I am satisfied it is not to be taken into consideration, especially since most of the results reported were accomplished after vain and protracted efforts on the part of other physicians. These included rest in bed, hot water, iodine to the vaginal vault, glycerine tampons, and in one case repeated blisters to the hypogastrium.

I do not deny the value of these time-honored measures, nor do I question their usefulness or the good results credited to them, but that they at times fail, are slow in their action, and are limited in their usefulness, will not be denied.

The principles involved in the treatment usually adopted for the relief of these chronic inflammatory affections of the appendages are depletion, counter-irritation and drainage, with perhaps stimulation of the lymphatics to promote absorption of effused material. The same indications are met by the application of electricity, with the exception of counter-irritation, which I do not think enters into its action. The older methods of treatment by hot water, glycerine tampons, iodine to the vaginal vault, rest in the horizontal position, and counter-irritation to the hypogastrium, have been so long in use that the principle of their action is pretty well understood, and the results accomplished thereby are not questioned. Of the more recent measure—dilatation, curettement and gauze packing of the uterine cavity—less is known, and, if I understand correctly, its advocates are not yet certain whether its good effect is due to the drainage afforded the diseased uterine cavity, and possibly the tubes as well, or to some unexplained alterative action set up by the procedure. Yet it has many advocates who do not question its action, nor attribute the good results to any other measure which may be employed coincidentally—rest in bed, for instance, and the iodoform. I make no objection to this procedure in appropriate conditions, because I believe it meets the requirements in effecting depletion and drainage, and I have found that it accomplishes just what Dr. Polk has claimed for it. But the cases must be selected, and the operation must be sometimes repeated many times, and, above all, it necessitates the use of an anesthetic and confines the patient to bed, for which reasons it cannot always be adopted as a matter of choice.

Of the agent under consideration—electricity—less still is known, and less pains is taken to better understand it. In consequence it is regarded as mysterious, and its effects and results are discredited because it is too intricate to be clearly appreciated without some thought and study. Exactly the same principles are involved in its action, as render the other methods of treatment valuable in these conditions. The main difference is that it is more broadly applicable than the operative procedure mentioned above; it can be employed in acute conditions; it affords prompt relief of the pain which is the most prominent symptom; and it is more effectual than the other measures so universally employed.

In utilizing this method in preference to others it is a matter of choice based upon individual experience, and as one speaker remarked, the "personal equation" enters largely into the value of the observations. My experience with the treatment of these conditions, extending over a

period of fifteen years, has led me to regard the older methods, described above, as tedious, slow and exceedingly unsatisfactory, for which reason I welcome any plan which promises more prompt and satisfactory results, and removes the necessity of a radical operation; an operation which removes but does not cure the diseased structures, and which oftentimes leaves the patient in no better condition than before, but deprives her of organs usually essential for a useful, happy and healthful existence. I am not wedded to any particular method, nor do I think that the plan of treatment I have outlined should be used in every instance, to the exclusion of all others, which I think is shown by the fact that I have frequently employed the method suggested by Dr. Polk and others, but I believe that every one is justified in pursuing that course which he has found most satisfactory. I am free to confess that the treatment by electricity has given both me and my patients more satisfaction than any other, and the more I use it, the better I know how to use it, and the more satisfied I am with the results. This is not intended as an excuse, but an explanation of my choice of methods in dealing with these conditions. Some further explanation seems necessary, however, to remove the "mysticism" which is supposed to go hand in hand with this agent; and to do this the manner of its action, and its adaptability to these particular conditions, in other words, the why and the wherefore must be given. This I will endeavor to supply.

It would hardly seem necessary to say, that in order to obtain satisfactory results with this or any other therapeutic measure, it should be used intelligently and with a definite purpose in view, yet it is frequently employed in a haphazard manner by men who wonder why they do not succeed, and their failure causes them to discredit the value of the agent. Two things are essential for success, viz.: first, an accurate diagnosis of the existing condition with the indications for treatment; and second, the agent must be employed for a definite purpose, and in a manner to meet these indications.

The galvanic current is employed for the purpose of effecting relaxation and dilatation of the cervical canal with drainage from the uterine cavity, which is accomplished by using the negative pole attached to a metallic electrode placed in the canal. A moderate strength is employed when dilatation without cauterization is desired, but an increased strength is necessary when destruction of the diseased endometrium is required. Profuse drainage resulting in depletion follows the use of this pole employed in this manner. Relaxation with dilatation of the lumen of the fallopian tubes when it is obstructed by tumefaction of the mucous lining likewise follows the use of this pole in the uterus. The same effect upon the tube can sometimes be obtained by applying the ball electrode (protected with cotton) to the vaginal vault. (If any one doubts the power of the galvanic current to overcome obstruction due to tumefaction of the mucous membrane without actual contact with that surface, let him try the effect upon nasal obstruction due to the same cause, by applying one pole on each side of the nose. A strength of five milliamperes is sufficient.)

I believe it will be conceded that the obstruction of the lumen of the fallopian tube at the uterine end rarely amounts to actual occlusion, particularly in non-purulent salpingitis, but is due to tumefaction from infiltration of the mucous lining, and that even in purulent salpingitis the obstruction is often due to similar causes.

Kaltenbach² describes a condition of eccentric hypertrophy of the muscular coat which he believes produces an

impediment to the evacuation of the tube, owing to contractions of the uterine muscular tissue. The twisting and curling of the tubes is likewise the result of infiltration of the structures composing the tube walls, and may disappear on the subsidence of the inflammation.

Bland Sutton, who has devoted much time to the study of the pathology of tubal diseases, declares that the uterine end of the fallopian tube is rarely obliterated in salpingitis even when the abdominal ostium is found sealed from inflammatory action, but the obstruction frequently found there is due to tumidity of the mucous lining. He says that the tender pelvic swellings found in these conditions are in many instances the fallopian tubes swollen in consequence of the catarrhal condition of the mucous membrane, and that the swelling, pain and tenderness vanish with the subsidence of the inflammation. My experience coincides with his findings.

If it is possible to relieve and cure inflammation elsewhere why should this result be thought unreasonable here? And if these tender pelvic swellings can be made to disappear by subduing the inflammation, why is it thought necessary to remove them by excision?

I am reminded of the pertinent remarks of that venerable gynecologist Dr. Thomas Addis Emmet, at a meeting some years ago. He had returned from a trip abroad, he said, somewhat impressed with what was being done by Mr. Tait in England, and he determined to do his operation as soon as he found a case which he thought demanded it, but while he was still looking about for a suitable case upon which to try the operation he was very much surprised to hear a young man only a half dozen years out of college report seventy such cases operated upon.

I crave pardon for this digression.

Having removed the temporary obstruction of the tube it drains with the uterine cavity. Repeated applications of a similar nature results in permanently overcoming the obstruction, and the drainage and depletion afforded together with other measures adopted, which are to be described further on, removes the infiltration, promotes absorption of effusions in the vicinity and overcomes the inflammation. The intra-uterine applications likewise effect a cure of the endometritis which in all probability was the origin of the tubal inflammation and is directly responsible for its continuance.

The positive pole applied to the vaginal vault may be useful in relieving congestion, which effect is due to the peculiar properties of this pole, the fluid element of the tissues being driven in the direction of the negative pole, producing depletion in the vicinity of the positive; but it is to be employed only when there is no obstruction with accumulation in the tube and when there is no evidence of the presence of pus. It may be employed in the uterus when an endometritis is accompanied by too profuse a discharge which may prove exhausting to the patient, or when there is a hemorrhagic tendency from the endometrium, or when menstruation is too profuse, if the above contra-indications do not exist. So much for the action of the galvanic current.

The faradic current is employed in conjunction with the other for a twofold purpose; viz: to relieve pain and to remove capillary engorgement. That it is capable of rendering such service must be accepted as a fact deduced from many reliable sources, for an extended explanation of its exact action in this respect is beyond the scope of this paper. Those interested in pursuing an investigation into the truth of this statement are referred to the contributions of others as well as those of the writer upon this point. The faradic current then is utilized to annul the pain which is a most important consideration to the patient. By

² Martin's Diseases of Women, p. 391

relieving capillary engorgement it effects depletion in another direction and aids the removal of the infiltration and tumefaction of the tissues involved, and by stimulating contraction of the muscular coats of the tubes peristaltic movements are induced which favor evacuation.

To obtain these results it is essential that the apparatus employed shall be reliable, and capable of furnishing a current possessed of the qualities I have so strenuously insisted upon elsewhere; and the applications must be made in the most careful manner to preserve a state of sedation throughout the entire séance, leaving the patient in a state of perfect calm. Unless these directions are observed success must not be anticipated.

My plan in commencing the treatment of these cases is to quiet the pain and render the patient comfortable at first with the faradic current, using the bipolar method in the vagina and the current of high tension; and it is not until the patient has been rendered tolerably comfortable and the pelvic engorgement has in a great measure been relieved that the electrode is introduced into the uterus and the galvanic current employed. It is of course understood that this plan is to be varied somewhat for the different varieties of salpingitis, but it would be impossible in this brief paper to detail the variations necessary for the different phases of this disease. Suffice it to say that the principle of treatment is the same, *i. e.*, the chief indications are to relieve the pain, remove the engorgement and tumefaction, and secure drainage from the uterine cavity and the tubes as well. It has been shown how this may be accomplished by electricity.

I trust that I have succeeded in establishing the claim that this method is founded upon a rational basis.

Discussion.

Dr. von Raitz said he had treated five or six cases of salpingitis by electricity, two of them being gonorrhœal, as proven by the presence of the gonococci. A uterine dilator was first used, then the uterine electrode covered with cotton was introduced into the uterus, and the other electrode placed over the site of the salpingitis. A current as strong as could be borne was employed.

Dr. Goelet could see no necessity for employing the dilator before introducing the electrode since dilatation could be accomplished by using the negative pole.

THE NEGATIVE POLE OF THE GALVANIC CURRENT WITH FARADIZATION AS A UTERINE DEVELOPER WITH REPORT OF CASES.

By Charles C. Cannaday, M.D., Roanoke, Va.

After having directed my attention to the "nons et origino" of uterine diseases and observing its frequency in inhabitants of cities and countries and those in the highest walks of life in this and foreign countries, and also noting their seldom occurrence in the lower classes and those doing manual labor, as well as its rarity in the uneducated, and uncivilized, I sought to find an explanation for this eccentric occurrence. If we could obtain correct statistics of the United States in reference to diseases of women peculiar to their sex, especially those relating to diseases of uterus, tubes and ovaries and compare them with accurate ones from England, France and Germany, I am satisfied, both from experience and observation, together with what information I have been able to obtain from eminent gynecologists in those countries and this, that they are more frequent, all things being equal, in the United States. The density of the population, the proximity of larger hospitals, their custom of applying early for treatment in those oriental countries may lead us to form from first observation a different idea; this is due to the more perfect development of the oriental people. The early and persistent tax on the

brain in the United States, together with its continuous excitement during prime of life, combined with the modern styles of dress, results in hyper-development of brain and nervous system at the expense of some other organs. Now in the case of females, I think all will agree that it is at the expense of the uterus and appendages. The uterus is comparatively of little importance until the age of twelve years is reached, when it rapidly develops to the size of that of a virgin. We know that the uterus consists in a great part of unstripped muscular fibre, besides peritoneum and mucous membrane. We moreover have the canals of Gartner which are near, and the remains of the Wolffian bodies which are rudimentary. The modern forms of dress are donned at the age of 12 generally speaking, and at this age the brain is flush with blood from constant study, the uterus and appendages should receive blood which they do not get, and if they do get it, pressure from effects of tight lacing lessens both the volume and flow of the blood, and this pressure renders development of the unstripped muscular fibre deficient, makes it probable that the canals of Gartner will not be obliterated, and that the Wolffian bodies, that should be lost to sight, are left in such a state of existence as to be a focus for pathological developments. The nervous system must suffer from this limited flow, and all the generative organs may be in such a state of mal-development as to offer but feeble resistance to the invasion of disease.

The uterus is richly supplied with branches from the sympathetic nervous system, and defects in development, be it ever so small, must render physiological functions imperfect, and imperfection is usually attended with pain and reflex symptoms. Therefore I am thoroughly convinced that many a case of so-called uterine disease and nervous troubles in females are over-looked as to their true cause, that of mal-development, and that remedial measures are administered altogether foreign to the cause. I am inclined to think a conservative estimate is that at least 80 per cent. of females reared in the cities, and brought up in the highest circles of social life, have mal-development of the uterus and appendages, and that this mal-development is responsible for the large per cent. of pelvic ills and reflexes arising therefrom, so frequent in that class.

In mal-development the unstripped muscular fibre is usually so deficient in formation and so scanty that the normal dimensions of the uterus are not present, or if present, the structure is not sufficiently normal to sustain the uterus in its proper position, and flexion is the result, or the circulation may be deficient as well as the unstripped muscular fibre, and we may have congestion with an enlarged uterus retroverted.

For several years I have treated quite a variety of diseases of women that I could trace to the result of mal-development of the uterus, and am clearly convinced that this is responsible for a great many diseases not heretofore attributed to that cause. Apart from my own experience in this relation I will mention the fact that in females who in youth labor manually, and those in whom we have no great amount of mental work, and no unhealthy or injurious habits of dress, we find the minimum amount of pelvic diseases and the most perfect and satisfactory confinement and puerperium. For example, the woman who was reared in the country, the North American Indians, Chinese, Africans, etc. The explanation lies solely in the fact that the generative organs are perfectly normal in all their parts and capable of performing their respective functions within the bounds of perfection. And in no instance do we have better proof of this side of the question than in noting their easy labors and the absence of complications so frequent in the cultured and more civilized.

But time will fail me to follow this subject farther, for the field is a wide one.

(To be continued.)

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MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or Local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, APRIL 1, 1893.

AMERICAN MEDICAL ASSOCIATION.

CONSTITUTION AND BY-LAWS.

HISTORY.

In May, 1846, a medical convention was held in the city of New York to consider measures for the elevation of the medical profession, in all its constituent elements, and for the promotion of its organic unity. After much discussion, it declared that a National organization, of every State and interest was demanded. Committees were appointed, to draft a Constitution, By-Laws and a Code of Ethics, and to report at a meeting to be held the following year. Accordingly in May, 1847, representatives of the profession of the United States met in Philadelphia, heard and discussed reports of the committees and adopted a Code of Ethics, a Constitution and By-Laws, which, with slight alterations, have continued to direct the organized movements of the profession till now. In compliance with the instruction of the Association in June, 1892, the following Constitution and By-Laws are formulated for the purpose of promoting the best activity of a general medical organization of the profession in North America.

CONSTITUTION.

Name.—This organization shall be known as The American Medical Association.

MEMBERS.

Members.—Membership shall be limited to members of the several affiliated State medical societies recognized thereby or represented therein. As membership in these societies is open to all reputable practitioners in each State, the membership in the American Medical Association is open to all reputable physicians in North America.

All persons now members of the Association shall continue such so long as they remain, in good standing in their State society, and pay their annual dues.

If they desire to participate in any annual meeting they shall present to the Committee of Arrangements, of said meeting, a certificate from the officers of their State or local society to the effect that their standing is good, and one from the Treasurer of the Association showing that all dues are fully paid. To all presenting such certificates, the Committee of Arrangements shall issue the credentials necessary for active participation in the annual meeting.

Any member of a recognized State or local medical society may become a member of the Association by presenting to the Committee of Arrangements at any annual meeting, a certificate from the officers of his society showing that he is in good standing therein and a certificate from the Treasurer of this Association showing that he has paid the annual dues.

All members of the recognized State or local medical societies, who are unable to attend the annual meeting, may become members of the Association by sending to its Treasurer, at any time, a certificate from the officers of his society, of his good standing and remitting the annual dues.

All members who have fulfilled these two conditions shall have equal rights and equal responsibilities in the Association and regularly receive the Association journal.

All State Medical Societies with their constituent local societies shall be recognized by the American Medical Association if they accept its Code of Ethics.

Members of Canadian and Mexican medical societies, shall be admitted to membership upon the same terms, as those in the United States. The regular graduates of such schools and colleges of dentistry as require of their students, a standard of general education and a term of professional study equal to the best class of medical colleges in this country, and embrace in their curriculum all the fundamental branches of medicine; differing chiefly by substituting practical and clinical instruction in oral and dental surgery in place of practical and clinical instruction in general medicine and surgery, are recognized as members of the regular profession and eligible to membership upon the same terms as other members.

No person shall be permitted to take part in any annual meeting until he or she has completed the conditions of membership at that meeting and can exhibit certificates to this effect from the Committee of Arrangements. But suitable persons may be introduced as guests either at the general session or the Section sessions, and, be invited to engage in the scientific and social exercises of the meeting without taking part in the transaction of business.

MEETINGS.

Meetings.—The regular meetings shall be held annually at such time and place as may be advised by

the Business Committee and ordered by the Association. The details of these meetings are stated in the By-laws.

OFFICERS.

Officers.—The officers of this Association shall be a President, four Vice-Presidents, one Secretary, one Assistant Secretary, a Treasurer and a Librarian. These officers shall hold office during one year or until their successors are elected, and shall enter upon their duties immediately after election.

The President shall preside at the meetings, preserve order and decorum in debate, giving a casting vote when necessary, and perform all the other duties that custom and parliamentary usage may require. At the opening session he shall deliver an address to the general meeting, not to exceed thirty minutes in length.

The Vice-Presidents may be called upon to assist the President in the performance of his duties, and during his absence or at the request of the President, one of them shall officiate in his place.

The Secretary shall record the minutes of the general sessions and authenticate the proceedings; give due notice of the time and place of the next annual meeting; notify all members of committees of their appointment and the duties assigned to them; hold correspondence with other organized medical societies both domestic and foreign; and carefully preserve the archives and unpublished transactions of the Association.

For his personal expenses in attending the annual meetings the Secretary shall draw upon the Treasurer of the Association.

The Assistant Secretary shall aid in recording and authenticating the proceedings of the Association; serve as a member of the Committee of Arrangements and perform all the duties of the Secretary, temporarily, whenever that office shall be vacant by death, resignation or removal.

The Treasurer shall have the charge and management of the funds of the Association. He shall give the Board of Trustees bonds for the safe keeping and proper use and disposal of his trust. Through the same Board he shall present his accounts, duly authenticated, at each regular meeting. He shall each month furnish the President of the Board of Trustees with a statement of accounts for the guidance of the Board in its expenditures. For his personal expenses in attending the annual meetings, he shall draw upon the treasury through the President of the Board of Trustees.

The Librarian shall receive and preserve all property in books, pamphlets, journals, and manuscripts presented to or acquired by the Association, record their titles in a book prepared for this purpose and acknowledge the receipt of the same. He shall deposit these documents in such place and manner as

the Association may direct after advising with the Board of Trustees.

STANDING COMMITTEES.

The Committee of Arrangements shall be composed of at least seven members of whom the Assistant Secretary shall be one, all residing in the place at which the Association is to hold its next annual meeting. It shall provide suitable accommodations for the meeting; shall verify and report upon the credentials of membership; shall issue credentials of membership to such as fulfill the conditions; shall publish the rules governing the reading and discussion of papers and the order to be observed in the business of the general and sectional meetings; shall receive and announce all papers communicated, and with the several Section Secretaries, determine the order in which the papers shall be read and discussed; shall prepare a list of members present on a separate roll for convenience in calling the ayes and nays, when these are demanded; it shall have each member register his name, address, and place of stopping during the annual meeting, and the name of the Section that he will attend and in which he will vote for Section officers. The expenses of hall for general meeting, of rooms for the Sections, and cards of membership, shall be met by the Association. Should the committee incur other expenses, it must meet them from its own resources.

This Committee shall be nominated by the Business Committee and elected by the Association.

The Board of Trustees shall consist of nine members, three of whom shall be elected annually on nomination of the Business Committee and serve for three years. This Board shall manage all matters relating to finance and publication. Thus it must provide for and superintend the publication and distribution of all such proceedings of the Association as may be ordered to be published, in such manner as the Association may direct. In doing this it shall have authority to appoint an editor and such assistants as may be necessary and determine their salaries. It shall procure and control such materials as may be necessary for the performing of the duties assigned it. To the Board or its representatives must be delivered, during the annual meeting or as soon thereafter as is possible, by the Secretary of Association and by the Section Secretaries or Executive Committees, all records of meetings, papers, or discussions and such other documents as were ordered published by the Association.

All money received by the Board of Trustees or its agents, resulting from the discharge of the duties assigned them, must be paid to the Treasurer of the Association, and all orders for disbursements of money, in any way connected with the work of publication, must be endorsed by the President of the Board of Trustees. It shall further be the duty of

the Board of Trustees to hold the official bond of the Treasurer for the faithful execution of his office, to annually audit and authenticate his accounts and present a statement of the same to the Association. This report must specify the character and cost of all publications of the Association during the year, the number of copies still on hand and the amount of all other property belonging to the Association, under its control, with such suggestions as it may deem necessary. It shall yearly publish a list of members, their addresses in full, year of admission, the Constitution and By-Laws and Code of Ethics, and such other information as may be deemed useful, for yearly distribution to the members at each meeting.

At the opening of each volume it shall publish a disclaimer by the Association for any responsibility for opinions expressed in the volume.

To this Board must be referred all propositions for the appropriation of money, to be considered and reported upon before the final action on the same by the Association.

The General Business Committee shall be composed of the several Section Executive Committees, selected as hereafter described. It shall hold daily meetings during the sessions of the Association, and such other meetings as may be deemed necessary for the performance of its duties. All matters of business not provided for by the Committee of Arrangements, the Board of Trustees, the Judicial Council and Special Committees, shall be referred to it without debate, for consideration and report to the Association. In general this Business Committee shall give especial attention to the interests of the Association as a whole and through these interests shall seek the development of the Sections; it shall consider all matters of business referred to it by the Association, and report upon them at the earliest possible moment, when the Association may accept or reject said report as it may deem best.

It shall be the duty of this Committee to seek the removal of such obstacles as interfere with the cordial coöperation in the Association of all competent, honest practitioners of rational medicine throughout this continent, and to promote every means by which coöperation shall be effected and maintained.

Further, the General Business Committee shall make and present the nominations for officers of the Association and its Standing Committees, and recommend the time and place of the ensuing meeting. It shall appoint its own officers and adopt rules for the orderly performance of its duties. Finally, it is expected that it will perform all its duties in the interests of the advancement of scientific medicine.

The Judicial Council shall consist of twenty-one members, whose duty it shall be to take cognizance of and decide all questions of an ethical or judicial

character which may arise in connection with the Association. It is distinctly understood that neither this Council nor the Association shall take cognizance of differences arising between the members of any State or local society. Such differences must be settled by such societies themselves, and the Association will accept such decision as final.

Of the twenty-one members first appointed, the first seven named upon the list shall hold office one year and the second seven two years. With these exceptions, the term of office of the members of the Judicial Council shall be three years, seven being nominated by the Business Committee yearly, and elected by the Association. The Council shall organize by choosing a President and Secretary, and shall keep a permanent record of its proceedings. The decisions of said Council shall be final upon all ethical questions referred to it by the Association, and must be accepted without debate. Such decisions shall be reported to the Association as soon as practicable.

All questions of a personal character, including complaints and protests, and all questions on the ethical standing of medical societies, shall be referred at once, when presented to the Association, to the Judicial Council, and without debate.

INCOME AND EXPENSES.

The income of the Association shall be derived from subscriptions to its Journal and advertisements therein, from specific publications and voluntary contributions for specific objects.

Its funds may be appropriated for the expenses of halls, for general sessions and Section meetings, and for cards of membership, and such other expenses of the annual meeting as are essential for the conduct of the routine work; for meeting the necessary personal expenses of the Secretary and Treasurer while attending the annual meetings and in conducting the necessary correspondence; for publications; for enabling standing committees to fulfill their respective duties and conduct their correspondence; for the encouragement of scientific investigation by prizes; and for defraying the expenses of scientific investigation under the instruction of the Association where such investigation has been accompanied with an order upon the Treasurer to supply the funds necessary for carrying it into effect.

AMENDMENT.

No amendment or alteration shall be made in any of these rules except at an annual meeting next subsequent to that at which such amendment or alteration may have been proposed, and then only by the voice of three-fourths of all the members present. Provided, however, that when an amendment is properly under consideration, and an amendment thereto is offered germane to the subject, it shall be in order, and if adopted, shall have the

same standing and force as if proposed at the preceding meeting of the Association.

BY-LAWS.

1. *Order of Business.*—The order of business at the annual meetings of the American Medical Association shall be subject to the vote of three-fourths of all the members in attendance. Until thus altered, except when suspended, it shall be as follows:

1. Calling the meeting to order by the President.
2. The report of the Committee of Arrangements on the credentials of members, after the latter have registered their names and addresses; and on such other matters as it desires to present to the Association.
3. The reception of guests of the Association.
4. The annual address of the President.
5. The reception of reports from all special committees.
6. The reading and consideration of reports of standing committees, the Board of Trustees, Business Committee and Judicial Council.
7. New Business and instructions to standing committees.
8. The report of the Business Committee and the election of officers of the Association, the selection of next place of meeting.
9. Reports from the Executive Committees of the Sections.
10. Reading of the minutes by the Secretary.
11. Unfinished and miscellaneous business.
12. Adjournment.

MEETINGS.

The Annual Meetings of the American Medical Association shall be held in May if the place be in the South and in June if the place be in the North. The day of opening of the general sessions shall be on the first Tuesday after the first Monday of the month selected. The hour on the opening day shall be 10 A.M., and on the following days 4:30 P.M.

SECTIONS.

The several Sections shall hold their first meeting at 1:30 P.M. on the first day, and at 9 A.M. and 1:30 P.M. thereafter daily.

The several Sections are as follows:

1. Practical Medicine and Physiology.
2. Obstetrics and Diseases of Women.
3. Surgery and Anatomy.
4. State Medicine.
5. Ophthalmology.
6. Diseases of Children.
7. Dental and Oral Surgery.
8. Medical Jurisprudence and Neurology.
9. Dermatology and Syphilis.
10. Laryngology and Otology.
11. Materia Medica and Pharmacy.

Officers of Sections.—The officers of each Section

shall consist of a Chairman, Secretary and Executive Committee. The Chairman and Secretary shall be elected annually immediately after the Section is called to order on the afternoon of the second day. During the session of the first day, the Chairman shall appoint a Nominating Committee consisting, if practicable, of ex-chairmen of the Section, to report at the opening of the afternoon session of the second day. Election shall be by ballot.

The Executive Committee of each Section shall, when first appointed, consist of three members from among those who have been in attendance at the sessions of the Section for at least two years, to serve for one, two and three years respectively; and thereafter the retiring Chairman of the Section shall take the place upon the committee of the retiring member. It shall be the duty of the Executive Committee, in conjunction with the Chairman and Secretary, to give special attention to the interests of their own Section. Thus they shall secure the annual republication from THE JOURNAL of the work of the Section, its papers and discussions, lists of officers, lists of all members of the Section, with their addresses, and rules adopted by the Section for the conduct of its work, securing from the Section the funds needful for the performance of this purpose. They shall carefully edit all publications of the Section, and secure a creditable mechanical execution of the same. They shall also take such measures as in their judgment will secure the cordial coöperation of all reputable workers in their special fields in North America. If desired by the Section, they will make arrangements for an inexpensive annual dinner for their individual Section.

Further, these several Executive Committees of the Sections shall meet together and form a General Business Committee of the Association, with powers and duties described under the head of the General Business Committee.

The Chairman of each Section, in addition to his duties as a presiding officer and a member of the Executive Committee, shall read a short address at the opening of the session on the first day. In conjunction with the Secretary, he shall secure from members papers to be read and arrange for the discussion of the same. This order of Section work he shall communicate to the Chairman of the Committee of Arrangements at least one month before the annual meeting.

No paper read before the Sections shall occupy more than twenty minutes. If it be longer, the writer should make such an abstract as will bring it within the limit and present it for discussion. No person shall discuss any paper more than once, or speak longer than fifteen minutes without unanimous consent.

No paper shall be read before any Section that is

not in such condition as to pass at once from the reader's hands to the Executive Committee of the Section. Within thirty days, said committee must forward the entire work of the Section to the Board of Trustees with such recommendations as it deems proper. But no paper shall thus be sent by an Executive Committee that does not fall under one of the following heads:

1. Such as may contain and establish new facts, new modes of practice or new principles of real value.

2. Such as may contain the results of well devised original experimental research.

3. Such as present so complete a review of the facts on any particular subject as to enable the writer to deduce therefrom legitimate conclusions of importance.

Other papers containing material of more or less value, shall be returned to their authors, to be published as they may desire, with the statement that they were read before said Section of the American Medical Association.

In general, it is expected that each Executive Committee will make every effort to secure for its special Section, papers and discussions which will fairly represent the active workers in their department of medicine, and otherwise promote cordial good will among the several workers therein.

PUBLICATION OF PAPERS AND REPORTS.

All papers and reports must be so prepared as to require no material alteration or addition at the hands of authors. All Section work must be in the hand of the Trustees within thirty days after the annual meeting. Proofs will be sent authors, but they should be returned at the earliest possible moment, and unless returned within two weeks will be omitted from THE JOURNAL. Every paper requiring it shall be illustrated at the expense of the Association, should it accept the same for publication. Every paper accepted is understood to be contributed exclusively to the Association Journal, though brief abstracts of the same may be published elsewhere. In case of an article that is of especial value, the result of expensive research or experimentation, the Trustees at their discretion, may compensate the writer in accord with the usual price of such work.

The Board of Trustees has the power to reject any paper referred to it, unless especially instructed to the contrary by the Association.

DUES.

Each member of the Association shall pay his annual subscription to the Journal of five dollars before receiving from the Committee of Arrangements his membership ticket to the annual meeting. The evidence of this shall be the Treasurer's receipt for the five dollars. Any member failing for one year

to pay this subscription shall be dropped from the rolls.

DELEGATES.

The President of the American Medical Association is authorized to appoint members, desiring such appointment, as delegates to the several medical and scientific bodies that are in sympathy with the Association.

DUTIES OF MEMBERS.

No one shall be permitted to address the Association unless he first shall have given his name and address, which shall be distinctly announced from the chair. If desirable, the member may be required to go forward and speak from the platform.

Failure to do special committee work shall cause the offender to forfeit a continuance of the same appointment, or a place upon any other, unless satisfactory excuse is offered.

It is expected that every member will, in all ways available to him, promote the interests of the medical profession as represented in the Association. He is expected to conform to all its regulations in spirit and letter until they may be altered by the action of the body which formulated them.

CONDITIONS EXCLUDING FROM MEMBERSHIP.

All societies that reject the Code of Ethics of the American Medical Association or intentionally violate or disregard any article of the same are thereby of their own choice debarred from membership.

THE PREVIOUS QUESTION.

When the previous question is demanded, it shall take at least twenty members to second it. When the main question is put under force of the previous question and negatived, the question shall remain under consideration, the same as if the previous question had not been enforced.

NEW BUSINESS.

No new business, or resolutions by members, shall be introduced at the general session of the Association, except on the first and fourth days of the meetings.

ELIGIBILITY TO OFFICE.

In the election of officers and the appointing of committees by the Association and its President, they shall be confined, to members present at the meeting, except in the Committee of Arrangements.

MEDICAL AND SURGICAL EXHIBIT.

There shall be no medical and surgical exhibit, under the authority or recognition of the American Medical Association, other than that made before the several Sections under the supervision of the Business Committee. All that is new and of value to the scientific or practical physician can thus find an appreciative audience. Experience has shown that all other exhibits detract from the work in Sec-

tions and so lessen the attractiveness of the annual meetings to those whose presence is desirable.

THE CODE OF ETHICS.

The Committee on revision has not quite completed its work, but will have the revision ready for publication in an early issue.

ACROMEGALY.

That strange disease known as acromegaly continues to attract wide attention and the number of cases that are constantly being described in current medical literature, now that the features of the disease have become more generally known, would seem to indicate that the condition is much more common than was supposed. This idea is strengthened by the report of cases that were accidentally discovered, none of them coming under observation for the relief of painful or distressing symptoms. As *DERCUM* well puts it in a recent description of two such cases, both discovered by accident; it is probable that the larger number of patients with acromegaly pass through life without knowing that they are victims of a mysterious disease, realizing only that nature has made them big of limb and feature and unpleasant to look upon, thinking that their peculiar appearance was normal to them and not the result of a disease. Not long ago a case was discovered in the wards for skin diseases in the Cook County Hospital of Chicago, who was quite surprised to know that he was afflicted with a strange and obscure disease. In a recent critical digest of the literature on acromegaly *JOSEPH COLLINS* was able to refer to eighty-two recorded cases: he had one hundred and twenty-six references to the literature of the subject, thirty of the articles having appeared during 1892; of the whole list of articles fourteen were written in this country, and of these, six appeared in 1892, showing the increasing interest in the disease. The diffusion of knowledge concerning acromegaly has been and will be followed by the reports and descriptions of cases more or less thoroughly studied from all over the world. A disease which presents such characteristic and unusual external features as acromegaly cannot fail to attract attention. The uniform enlargement of the hands and feet without deformity or loss of function; the increase in the volume of the head with elongation and broadening of the face due to hypertrophy of the maxillary bones; the enlargement of the ears, of the tongue and other soft parts; the changes in the spine and elsewhere in the body together with headache; involvement of vision and other symptoms, ought to lead to the recognition of the disease in the majority of instances, and especially should this be true of those cases that may persist for as many years as fifteen or twenty or more.

PIERRE MARIE, the one who in 1886 first isolated acromegaly and defined it as a clinical entity, brought forward the view that the disease in all probability was due to changes in the pituitary body and it is quite true that in the majority of instances of post-mortem examinations of patients with acromegaly up to date the pituitary body has been found to be enlarged or otherwise morbidly changed. According to this view acromegaly is a systemic dystrophy dependent upon disturbances in the as yet unknown functions of the pituitary body, just as myxœdema appears to be due to diseases of the thyroid gland. In more than one-half of the cases reported in literature these have eye and ear symptoms and headache, pointing to direct changes in the hypophysis. It appears, however, that facts are gradually accumulating which tend to overthrow this hypothesis as to the etiology of acromegaly. In many cases of the disease the gland has not been found to be enlarged. Again, several cases are described (*PACKARD*, *WEIR MITCHELL* and others) in which the pituitary body was found either greatly enlarged or completely destroyed without the concomitant development of the phenomena of acromegaly. While it could not be demanded that every instance of pituitary disease should be followed by acromegaly yet the demonstration that acromegaly may exist without changes in the pituitary gland and that this body may be destroyed entirely without the appearance of acromegaly, would seem to throw much and reasonable doubt upon the theory originally advanced by *MARIE*. In the literature on acromegaly can be found cases in which glands in the most various parts of the body have been found greatly enlarged, and there are also cases recorded where extensive changes were found in the sympathetic nervous system, and *HOLSCHERNIKOFF* (*Nirchow's Archiv.*, Vol. 119, No. 1) details and comments upon a case of syringomyelia, degeneration in the peripheral nervous and acromegaly, so that it appears that the question can be safely raised as to what importance is to be attached to the pituitary body to glands elsewhere, and to the nervous system, in the etiology of acromegaly, which is manifestly a disease due to obscure trophic alterations.

THE IMPLIED CONTRACT BETWEEN PHYSICIAN AND PATIENT.

The implied contract between physician and patient, the violation of which on the part of the former constitutes malpractice, is defined anew with accuracy by the Supreme Court of Appeals of West Virginia, in the recent case of *Lawson v. Conway*, as follows:

When a physician is employed to attend upon a sick person, his employment continues while the sickness lasts, and the relation of physician and pa-

tient continues, unless it is put an end to by the assent of the parties, or is revoked by the express dismissal of the physician. The physician is bound to bestow such reasonable, ordinary care, skill, and diligence as physicians and surgeons in the same neighborhood, in the same general line of practice, ordinarily have and exercise in like cases. Time and locality are to be taken into the account, and the physician is bound to exercise the average degree of skill possessed by the profession in such localities. In the absence of special agreement, his engagement is to attend the case as long as it requires attention, unless he gives notice of his intention to discontinue his visits, or is dismissed by the patient, and he is bound to exercise reasonable and ordinary care and skill in determining when his attendance should cease. But his engagement is not to cure the patient, nor does he insure that his treatment will be successful. The mere failure to effect a cure does not even raise a presumption of a want of proper care, skill, and diligence. It is the duty of the patient to coöperate with the physician, and to conform to his prescriptions and directions, and if he neglect to do so he cannot hold the physician responsible for the consequences of his own neglect. On the other hand, he has a right to rely upon the instructions and directions of his physician, and incurs no liability by doing so.

THE SPECIALIST BEFORE A GENERAL MEDICAL SOCIETY.

When a specialist appears before a society composed mainly of practitioners of medicine and surgery, it should be with one of three avowed intentions, either 1, to present new investigations or discoveries which can not be better presented elsewhere; or 2, to instruct the members in that which it is important for them to know; or 3, simply to remind his hearers that he is still "doing business at the old stand." The numerous local and national special associations and special sections of general associations afford more than sufficient space for the presentation of all discoveries and investigations in special fields of labor, and in such meetings only can they be properly appreciated and intelligently discussed; and the specialist who takes the results of such work into a meeting of general practitioners subjects himself, unjustly no doubt in most instances, to the criticism of covert advertising. That any physician will selfishly occupy the time of any meeting solely for the sake of gain we cannot believe, although the regularity with which some reappear at the surface would seem to justify this conclusion. The only excuse, then, for the specialist would seem to be that he comes in the guise of a teacher and is prepared to impart knowledge which the members wish or need. As a general thing the society, or its officers,

are competent to judge of these needs and wishes. This has, perhaps unconsciously, been recognized by the Section on Pediatrics of the New York Academy of Medicine. On December 8, ult., by invitation, papers were read by DR. LEWIS A. SAYRE, DR. ROYAL WHITMAN, DR. A. M. PHELPS, and DR. LEROY M. YALE before this Society, upon the early symptoms and the diagnosis of hip disease and POTT's disease. Such subjects as the early symptoms, the differential diagnoses, the prognosis, and the principles of treatment are practical and are appreciated, while the exhibition of results smacks of quackery and the tedious investigations of pathology and etiology and the confusing statistics of numerous cases become a weary burden to the listener and find a more proper place in print than on the floor of a medical meeting.

DOMESTIC CORRESPONDENCE.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

In a recent reprint from the Association Journal, entitled "Herpes of the Buccal Mucous Membrane," the name of Cohen, in parenthesis, is included among others referred to as ignoring the subject of herpes of the pharynx. The name, which was an enclosed marginal note of the original manuscript, was not intended for the printer, and as its presence there does Dr. Solis-Cohen, who not only refers to herpes in his text-book, but has also reported several interesting cases, great injustice, I beg that you will insert this in explanation. Respectfully,

J. E. BOYLAN.

BOOK REVIEWS.

THE YEAR BOOK OF TREATMENT FOR 1893. A critical review for Practitioners of Medicine and Surgery. By twenty-two English contributors. Philadelphia: Lea Brothers & Co. 1893.

Multum in parvo, litly describes the nature of this little gem of a book. It represents the reading and condensing of a large number of medical journals for the past year. The material is selected with mature judgment as to its value, and is presented in as concise a form as is consistent with clearness. The 500 pages are brim full of well culled information on the recent advances and the present status of medicine in all of its practical branches. It has an index to authors quoted, and one to subjects.

In order that the reader may judge of the general tenor of the work a few notes are given on some of these subjects that seem to be uppermost in the thoughts of the profession. Dr. W. H. Corfield gives an account of the successful methods adopted by the sanitary officers of Great Britain to prevent an epidemic of cholera last year. He maintains that this is a preventable disease and insists that "those are surely to blame who, where the opportunities are given, do not succeed in preventing it."

Dr. E. M. Skeritt recommends the new anti-asthmatic, *euphorbia pilulifera*, but its mode of action is unknown. Excellent results are claimed. Dr. W. Jones reported twenty-three cases of asthma, in some of which removal of exostoses of the septum nasi, hypertrophied middle turbinates and polypi resulted in cures. In two instances of atrophic rhinitis alone cauterization only increased the asthma. Parenthetically it may be said that the same deplorable result has followed the same treatment in hypertrophic rhinitis.

In chronic bronchitis banana juice was reported to have given relief. The subject of tuberculosis occupies nineteen pages with a very complete review.

Dr. E. S. Reynolds' article on nervous diseases, abounds in reports on the effects of the latest hypnotics. Ballett sprays the spine with ether for chorea and uses no internal medication in the majority of cases, but his theory would suggest the administration of quinine also. Contrast this non-medical treatment with Voisin's 120 grains of potassium iodide *per diem*! With most of the writers antipyrine, chloral, and arsenic were the favorite remedies. Exalgin, in two or three grain doses, was said by Lowenthal to be successful in the majority of cases. Dana thinks it is a specific.

Brown-Séquard's fluid comes to the front again with reports of thirty-one cases of tabes cured or benefitted by injections of the testicular juice by Depoux and Gilbert. Strychnine and hypnotism are recorded as the most promising combatants of inebriety. There are important discussions of albuminuria favoring strophanthus, caffeine and diuretin, also morphine in small doses for uræmia. The differential diagnosis of diphtheritic affections is ably discussed by both American and English authors. As a rule, however, throughout the book the writers quoted are Europeans—English, French and Germans, in the order named. The review of the field of syphilis is pretty complete.

The summary of the therapeutics of the year 1892, by Dr. W. G. Smith is an unusually satisfactory one. It gives an account of the newest remedies, many of which are not mentioned in the latest works on therapeutics.

The book is of the right size and character to make an ideal traveling companion for the progressive physician.

ALCOHOLISM AND ITS TREATMENT. By J. E. USHER, M.D., F.R.C.S., London, formerly Surgeon Superintendent and Medical Officer of Health to the Queensland Government. New York: G. P. Putnam's Sons. 1892: Pp. 150.

The author takes the position that alcoholism is a disease not that every one who drinks is an alcoholic, however. He defines his position thus: "It is not intended that any forms other than those of a chronic nature, or where a known heredity exists, or in which fixed mental change (insanity) is present (as shown by positive evidence in the changed conduct of an alcoholic), can be allowed in palliation of any offence; and then only where the circumstances have been fully investigated and understood. At times it would be necessary to have opinions of experts to dispel any uncertainty that might be supposed to exist."

Numerous cases are detailed, illustrating the different phases of alcoholic insanity, and are as deeply interesting as a narrative from the pen of a novelist. Heredity as a cause of the drink habit is estimated to be present in nearly 60 per cent. of all cases of alcoholism. This book shows the large proportion of the insane in the hospitals of different countries, and the relative proportions of criminals of the various classes, who were drunkards. It is in effect an irresistible scientific temperance argument, but possibly inoffensive. It is not intended as a temperance lecture and does not emanate from a prohibitionist, but one cannot read it without the impression that there is no need of using cheap sensationalism to inculcate the principles of true temperance. Dry (?) statistics thunder forth the loudest warnings against the shock results of the accursed thirst for drink. "Ten nights in a bar room" does not begin to reveal the wretchedness of the tens of thousands whose insatiable appetite costs them their reason, their liberty and their lives.

The laws of England and of the United States, bearing on this subject, are reviewed and compared with decided

advantage to our own, in an equitable and humanitarian point of view. It is held that the insane criminals should be housed and confined in hospitals.

The subject of treatment occupies one-fifth of the book, and the methods of the most prominent specialists of Europe and America are given. Analyses of the alleged cures are published, including the much advertised gold fad.

Every physician, sociologist and humanitarian who desires a broad understanding of the present scientific status of the subject of alcoholism should cultivate the acquaintance of this admirable monograph.

DISEASES OF THE THROAT, NOSE AND EAR. A Clinical Manual for Students and Practitioners. By P. M. McBRIDE, M.D., F.R.C.P., Ed., Fellow of the Royal Society of Edinburgh; Surgeon to the Ear and Throat Department of the Royal Infirmary, etc. Philadelphia: P. Blakiston, Son & Co.

In this work the author has presented his subject in a much more perspicuous and concise manner than is usual in many books purporting to be manuals. He has assumed that the student is familiar with the anatomy and physiology of the organs considered, or has the facilities for becoming so, and therefore does not burden his book with elaborate disquisitions on these matters, merely incorporating in the text anatomical and physiological hints where such are specially required on clinical grounds.

A lengthy and detailed description of instruments is also purposely and wisely avoided.

In the chapter devoted to general semeiology of the diseases of the nose, the author makes a very fair statement of the views of rhinologists as to the remote effects of morbid conditions of the nose, especially as to the so-called nasal reflex neuroses. We heartily agree with the statement that "while rhinologists know what a normal nose ought to be, they are not aware of the exact amount of deviation from the normal which may exist without discomfort in any given case. More or less hypertrophy of the mucous membrane and irregularities of the septum can—while men are constituted as they are, and not according to what the rhinologist conceives they ought to be—hardly be classed as morbid conditions." His own practice, and it would be well if he had more followers, is to treat such conditions only when they produce discomfort.

He recognizes the fact that treatment of the nose is able to cure or temporarily relieve a number of neuroses, but does not consider that the latter are, in consequence, necessarily of nasal origin. Here he occupies conservative ground, and sounds a note of warning to those who see in operations on the nose a cure for a multitude of ills; the indiscriminate practice of such operations may do harm, as we have often had occasion to see.

The part of the work devoted to the diseases of the ear is excellently written, and the subject is presented in a practical way. Taking up the methods of examination, he discusses briefly and well the value to be attached to the experiments of Weber and Rinne.

A chapter on general semeiology and one on general therapeutics are followed by two hundred pages devoted to a consideration of the diseases of the external, middle and internal ear. We had hoped that the author would shed a little more light on the abstruse subject of affections of the internal ear, but it is rather briefly considered.

The references to literature are very numerous, as shown by the long list of names in the index of authors, but it is to be regretted that a book that contains such evidence of the writer's wide reading should not have been deemed worthy of a carefully prepared bibliography.

The work is handsomely illustrated with numerous colored plates from original drawings, and is to be highly recommended.

MISCELLANY.

By DIRECTION of the Committee of Organization of the Pan-American Medical Congress, the following gentlemen have been elected an Advisory Council in the Section on Pathology: Drs. W. H. B. Aikes, *Ontario Medical Journal*, Toronto; Allen J. Smith, University of Texas, Galveston, Tex.; G. N. F. Nuttall, Johns Hopkins University, Baltimore; W. T. Howard, Jr., 304 Madison Ave., Baltimore; W. N. Gardner, Long Island College Hospital, Brooklyn; Ira Van Giesen, 137 W. Fifty-ninth St., New York; Thos. G. Lee, University of Minnesota, Minneapolis; Joseph McFarland, Philadelphia; Henry W. Cattell, Philadelphia; E. H. Wilson, Hoagland Laboratory, Brooklyn; James E. Reeves, 201 McCullen Ave., Chattanooga; Henry Dickson Bruns, Morris Building, New Orleans. DAVID INGLIS, Sec'y.

SECTION OF GENERAL MEDICINE OF THE PAN-AMERICAN MEDICAL CONGRESS.—This unique assemblage promises to be one of the most important events that has occurred in the history of medicine in the Americas. Its success is assured by the large number of valuable papers already promised. The Section on General Medicine, which is one of the most important that has been created, bids fair to be one of the most successful in the entire Congress; and already many valuable contributions are in process of preparation, and will be read at the meeting in September. It is hoped with the hearty coöperation of all physicians living not only in North but also in South and Central America, that the work in this Section will be memorable; and each physician living on this continent is requested to join this most important Section, and to prepare a contribution to be read before that body. It is especially requested that those intending to join this Section or to read papers shall at once send their names, with titles of papers, to the Secretary, Dr. Judson Daland, No. 319 South Eighteenth Street, Philadelphia, Pa., so that they may be noted on the calendar and given their appropriate places.

INDIAN TERRITORY MEDICAL ASSOCIATION.—At the next regular semi-annual meeting of the Indian Territory Medical Association at Atoka, Ind. Ter., Thursday, June 22, 1893, the following papers will be presented:

Tetanus, by B. Hatchet, M.D., Ft. Smith, Ark.
La Grippe, by J. C. Bushymead, M.D., Claremore, I. T.
Discussion opened by E. N. Allen, M.D., McAlester, I. T.
Pneumonia, W. C. Hall, M.D., Coffeyville, Kan.
Discussion opened by R. I. Bond, M.D., Lehigh, I. T.
Laceration of the Cervix Uteri, E. N. Wright, M.D., Lehigh, I. T.
Discussion opened by G. R. Rucker, M.D., Eufaula, I. T.
Uterine Inertia, by J. N. Winsborough, M.D., Wagoner, I. T.
Discussion opened by L. C. Tennant, M.D., McAlester, I. T.
Stricture of Membranous Urethra, W. R. Thompson, M.D., Oklahoma City, O. T.
Discussion opened by A. M. Clinkscapes, M.D., Vinita, I. T.
Vesical Calculus, W. H. Harrison, M.D., Webbers Falls, I. T.
Discussion opened by J. R. Blakemore, M.D., Muskogee, I. T.
Conjunctivitis, by J. H. Moulton, M.D., (Specialist,) Ft. Smith, Ark.
Voluntary papers solicited. H. B. SMITH, M.D., Pres.,
OLIVER BAGBY, M.D., Sec'y., McAlester, I. T.
Vinita, I. T.

PAN-AMERICAN MEDICAL CONGRESS, to be held at Washington, D. C., September 5, 6, 7 and 8, A.D., 1893.

Section on Hygiene, Climatology and Demography. Honorary Presidents.—Drs. A. Nelson Bell, Brooklyn, N. Y.; Federico Puca Borne, Santiago, Chile; Emelio R. Coni, Buenos Aires, Argentine Republic; J. J. Cornilliae, St. Pierre, Martinique, E. W. I.; Roland G. Curtin, Philadelphia, Pa.; Charles Denison, Denver, Col.; Martin Dulante, Lima, Peru; Samuel H. Durgin, Boston, Mass.; Justin E. Emerson, Detroit, Mich.; Carlos Finlay, Havana, Cuba; Felix Formento, New Orleans, La.; Aranjio Goes, Rio de Janeiro, U. S. of Brazil; Henry R. Hopkins, Buffalo, N. Y.; E. P. LaChapelle, Montreal, Canada; Eduardo Liceaga, City of Mexico, Mexico; Frederick Montizambert, Quebec, Canada; John S. McGrew, Honolulu, Hawaii; John H. Rauch, Chicago, Ill.; E. L. Shurley, Detroit, Mich.; Stephen Smith, New York City; Deputy Surgeon-General George M. Sternberg, U. S. A.;

John Sundberg, San Francisco, Cal.; Henry P. Walcott, Boston, Mass.; Irving A. Watson, Concord, N. H.

Executive President.—Medical Director Albert L. Gihon, M.D., U. S. N.

Secretaries.—Drs. Peter H. Bryce (English-speaking), Toronto, Canada; Pedro José Salierup (Spanish-speaking), 129 E. Seventeenth St., New York City; Pedro N. Arata, 25 de Mayo 273, Buenos Aires, Argentine Republic; Luis Pierola, La Paz, Bolivia; Pacifico Pereira, Bahia, U. S. of Brazil; E. J. Rowland, New Amsterdam, British Guiana; Gabriel Durango Borda, Bogota, Republic of Colombia; Juan J. Flores, Heredia, Costa Rica; Manuel Dellin, Havana, Cuba; George Trouseau, Honolulu, Hawaii; Clarke, Santa Cruz, Jamaica; Kalmer, St. Croix, Leeward Islands, W. I.; J. Carreau, Point à Pitre, Guadeloupe, F. W. I.; Enecon Mora, Quezaltenango, Guatemala; Domingo Orvañanos, Chavarria 25, City of Mexico, Mexico; Montenegro, Leon, Nicaragua; José Arechavala, Montevideo, Uruguay; Calixto Gonzáles, Caracas, Venezuela.

Advisory Council.—Drs. Thomas J. Bennett, Austin, Tex.; William F. Brunner, Savannah, Ga.; John Coventry, Windsor, Ontario; J. Z. Currie, Fredericton, New Brunswick; Charles H. Fisher, Providence, R. I.; Henry D. Holton, Brattleboro, Vt.; George Homan, St. Louis, Mo.; Henry B. Horlbeck, Charleston, S. C.; Samuel R. Milliken, New York City; George Milne, Victoria, British Columbia; Henry S. Orme, Los Angeles, Cal.; Charles O. Probst, Columbus, O.; George H. Robt, Catonsville, Md.; Pinckney Thompson, Henderson, Ky.; James B. Walker, Philadelphia, Pa.

THE TENNESSEE STATE MEDICAL SOCIETY will meet in Nashville, April 11, 12 and 13. The following is the programme.

"Human Life," President's Address, by C. W. Beaumont, M.D., President, Clarksville.

"Monkeying with Microbes," by A. B. Tadlock, M.D., Knoxville. To open discussion, G. W. Drake, M.D., Chattanooga, and Richard Douglas, M.D., Nashville.

"Genital Reflexes," by C. Holtzelaw, Chattanooga. To open discussion, W. Frank Glenn, M.D., Nashville, and Charles M. Drake, M.D., Knoxville.

"What Relation Does Dentition Bear to Disease?" by Thomas P. Davis, M.D., Alexandria. To open discussion, W. D. Haggard, M.D., Nashville, and D. F. Banks, M.D., Jordanonia.

"Report of a Case of Extensive Scalp Wound," by G. B. Gillespie, M.D., Covington. To open discussion, G. A. Baxter, M.D., Chattanooga, and J. B. Murfree, M.D., Murfreesboro.

"Maritime and Interstate Quarantine," by G. B. Thornton, M.D., Memphis. To open discussion, J. Berrien Lindsley, M.D., Nashville, and P. D. Sims, M.D., Chattanooga.

"Typhoid Fever in Young Children," by L. P. Barbour, M. D., Tracy City. To open discussion, T. L. Maddin, M.D., Nashville, and J. A. Witherspoon, M.D., Columbia.

"Wounds to the Eye Ball," by N. C. Steele, M.D., Chattanooga. To open discussion, T. H. Wood, M.D., Nashville, and W. C. Bilbro, M.D., Murfreesboro.

"Whooping Cough," by Wm. B. St. John, M.D., Bristol. To open discussion, W. G. Ewing, M.D., Nashville, and J. F. Byrn, M.D., Murfreesboro.

"Traumatic Empyema," by N. T. Dulaney, M.D., Bristol. To open discussion, Duncan Eve, M.D., Nashville, and R. J. Trippe, M.D., Chattanooga.

Paper, title of which I have not yet learned, by A. D. Scruggs, M.D., Knoxville.

"The Indications and Methods of Treating Uterine Fibroids" by Richard Douglas, M.D., Nashville. To open discussion, W. L. Nichol, M.D., Nashville, and R. B. Maury, M.D., Memphis.

"Report of a Case of a Tumor Complicating Delivery," by T. J. Croftord, M.D., Memphis. To open discussion, Thomas Menees, M.D., Nashville, and J. B. Cowan, M.D., Tullahoma.

"Retro-Flexio Uteri," by J. R. Buist, M.D., Nashville. To open discussion, W. G. Bogart, M.D., Chattanooga, and J. Bunyan Stephens, M.D., Nashville.

"Recurrent Pelvic Inflammation," by W. W. Taylor, M. D., Memphis. To open discussion, A. W. Boyd, M.D., Chattanooga, and W. M. Vertrees, M.D., Nashville.

"Uterine Displacement," by J. A. Witherspoon, M.D., Columbia. To open discussion, T. H. Marable, M.D., Clarksville, and J. P. C. Walker, M.D., Dyersburg.

"Report of an Interesting Case of Vaginal Hysterectomy," by W. D. Haggard, M.D., Nashville. To open discussion, W. T. Briggs, M.D., Nashville, and C. E. Ristine, M.D., Knoxville.

"Post-Partum Hemorrhage," by H. J. Warmuth, M.D., Smyrna. To open discussion, W. L. Haggard, M.D., Nashville, and Charles H. Brooks, M.D., Knoxville.

"Pyæmia," by C. W. Womack, M.D., Chapel Hill. To open discussion, J. S. Cain, M.D., Nashville, and C. Dadrick, M.D., Knoxville.

"Report of a Case of Congenital Fistula, Operation and Cure," by W. A. H. Coop, M.D., Dyersburg. To open discussion, Richard Cheatham, M.D., Nashville, and S. S. Crockett, M.D., Nashville.

"Report of a Case," by Duncan Eye, M.D., Nashville.

"Treatment of Indolent Buboes," by W. B. Rogers, M.D., Memphis. To open discussion, W. K. Vance, M.D., Bristol, and W. K. Sheddan, M.D., Williamsport.

A paper by R. J. Trippe, M.D., Chattanooga.

"Aids to Digestion," by L. C. Chisholm, M.D., Orlinda. To open discussion, J. W. Penn, M.D., Humbolt, and A. J. Swaney, M.D., Gallatin.

"Progressive Medicine and Surgery," by John P. Blankenship, M.D., Maryville. To open discussion, F. L. Sim, M.D., Memphis, and T. R. Moss, M.D., Dyersburg.

"Diphtheria," by T. J. Happel, M.D., Trenton. To open discussion, George R. West, M.D., Chattanooga, and Thos. M. Woodson, M.D., Gallatin.

"Report of the State Board of Medical Examiners," by T. J. Happel, M.D., Secretary. To open discussion, J. G. Sinclair, M.D., Nashville, and Deering J. Roberts, M.D., Knoxville.

"Report of a Case of Tuberculosis of the Kidney, Ureter and Bladder," by W. B. Young, M.D., Bon Air Coal Mines. To open discussion, G. W. Moody, M.D., Shelbyville, and S. B. Boyd, M.D., Knoxville.

"What the General Practitioner Should Know of Eye Diseases," by F. T. Smith, M.D., Chattanooga. To open discussion, Geo. H. Price, M.D., Nashville, and G. C. Savage, M.D., Nashville.

"Disease of the Prostate Gland," by J. W. Handley, M.D., Nashville. To open discussion, T. C. V. Barkley, M.D., Chattanooga, and C. S. Briggs, M.D., Nashville.

"Hypnotism and its Evils," by T. P. Crutcher, M.D., Nashville. To open discussion, W. C. Townes, M.D., and Paul F. Eve, M.D., Nashville.

It is not intended in appointing only two members to open discussion on papers to limit the discussion but to see that each paper is properly discussed. All parties should see that the reading of their papers does not consume more than twenty minutes, as prescribed by the by-laws, so that all papers on the program may be read, properly discussed and time may be given for any volunteer reports of cases or papers.

AMERICAN ACADEMY OF MEDICINE, preliminary program of the meeting for 1893, at Milwaukee. (Some of the papers are promised provisionally and are announced with this understanding.)

Saturday morning, June 3, at 10 o'clock:

Executive Business.

Reports of Committees.

1. On Eligible Fellows.

2. On the Requirements for Preliminary Education in the various Medical Colleges in the United States and Canada.

3. On the Comparative Value of Academical Degrees.

Papers:

1. "The Attitude of our Medical Schools in Relation to Preliminary Studies," R. Lowry Sibbet, Carlisle, Pa.

2. "What Mental Faculties should be specially trained for the study of Medicine?" James W. Moore, Lafayette College.

3. "The Classics and the Common Schools," J. Berrien Lindsley, Nashville, Tenn.

Saturday afternoon at 2:30:

President's Address.

Papers:

1. "What should be required in an Entrance Examination to a Medical School?" James W. Holland, Jefferson Medical School.

2. "Should there be elective studies in a Medical Course?" P. S. Conner, Medical Department, Dartmouth College.

3. "On the Endowment of Medical Schools," George M. Gould, Philadelphia.

Reunion Session, Saturday evening.

Monday morning, June 5, at 10 o'clock:

Executive Business.

Report of the Committee on the Laws regulating the Practice of Medicine.

Papers:

1. "The Duty of the State to Medicine," Benjamin Lee, Philadelphia.

2. "The Importance of the Study of Medical Sociology," Charles McIntire, Easton, Pa.

3. C. C. Bombaugh, Baltimore, title to be announced later. There will probably be time at the meeting for the reading of two or three papers more than are now on the program. Fellows who desire to contribute such papers are requested to send the titles to the Secretary.

MEDICAL ASSOCIATION OF GEORGIA.—Preliminary program of the forty-fourth annual session of the Medical Association of Georgia, to be held in Americus, Georgia, April 19, 20, and 21, 1893. Papers to be read (partial list):

The President's Annual Address, by A. A. Smith, M.D., Hawkinsville.

Orator's Address—Woman's Relations to the Practice of Medicine, by Frank Ridley, M.D., LaGrange.

Diffuse Traumatic Aneurism of Anterior Tibial Artery—Ligation of Femoral, by F. R. Calhoun, M.D., Cartersville.

Multiple Neuritis. "Alcoholic," by Mark H. O'Daniel, M.D., Macon.

Salpingitis: Pathology and Treatment, by R. R. Kime, M.D., Atlanta.

Puerperal Eclampsia, with Special Reference to its Cause and Treatment, by A. C. Davidson, M.D., Sharon.

Asphyxia Neophytorum, R. J. Nunn, M.D., Savannah.

Stab of the Stomach—the Organ Protruding through Abdominal Wall—Laparotomy—Recovery, by J. W. Griggs, M.D., West Point.

Operation for Fistula in Ano by Ligation, by John J. Hill, M.D., Washington.

The Contagiousness of Consumption, by J. G. Hopkins, M.D., Thomasville.

The Disappointment of the Menopause, by J. C. Avery, M.D., Atlanta.

Headache Versus Glaucoma, by W. T. Bullard, M.D., Columbus.

"Shot Gun" Prescriptions, by C. C. Hart, M.D., Cross Keys.

A Review of "Dr. Senn's Views on Elastic Constrictions," by W. H. Elliott, M.D., Savannah.

The Practice of Medicine in Georgia, by A. C. Blain, M.D., Macon.

Hernia, by W. F. Westmoreland, M.D., Atlanta.

Anti-pyretics, Translated from the German, of a Paper Before the National Medical Congress in Berlin, by Cantani—Translation made by Myself, S. B. Pollard, M.D., Griswoldville.

Science in Medicine and Surgery, by J. McFadden Gaston, M.D., Atlanta.

Ophthalmia of the New Born, by S. Latimer Phillips, M.D., Savannah.

Periproctitis with an Abscess, and Report of a Case, M. L. Currie, M.D., Mt. Vernon.

The Necessity for a Medical Examining Board in Georgia, by L. B. Granby, M.D., Atlanta.

Impure and Pure Mineral Waters, in which I will Endeavor to show the Frauds Committed in the sale of the First, and the Law Necessary for Protection in the Last, by T. S. Hopkins, M.D., Thomasville.

State and Municipal Hygiene, by J. C. Avery, M.D., Atlanta.

Rare Case in Obstetrics Practice, O. H. Buford, M.D., Cartersville.

Sterility in the Male, C. Evans Johnson, Atlanta.

Conditions indicating Abdominal Operations and Report of Cases, by Frank M. Ridley, M.D., LaGrange.

Pneumonia, by O. T. Kenyon, M.D., Weston.

The Function and Nutritive Value of Foods, by Louis H. Jones, Atlanta.

Stone in the Bladder, with Report of Cases, by F. W. McRae, M.D., Atlanta.

Non-Surgical Treatment of Typhilitis, by E. H. Richardson, M.D., Atlanta.

Drainage in Pelvic Surgery, by George H. Noble, M.D., Atlanta.

Specialism in Medicine, by A. S. Hawes, M.D., Atlanta.

Partial Tenotomy a Radical Cure for Heterophthalmia, by C. H. Peete, M.D., Macon.

Pathology of Gynecic Neurosis, by Ross P. Cox, M.D., Rome.

Persistent Remittant or so-called Typho-Malarial Fever, with Report of Cases, by W. P. Williams, M.D., Blackshear.

Some Remarks on Aseptic Surgery, with Exhibition of Sterilizing Methods, by T. M. McIntosh, M.D., Thomasville.

Mechanical Treatment of Some Skin Anomalies, by M. B. Hutchins, M.D., Atlanta.

Three Women Who Refused Laparotomy, by H. McHatton, M.D., Macon.

A. A. SMITH, M.D., President.

DAN H. HOWELL, M.D., Secretary.

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No. 14.

ORIGINAL ARTICLES.

ETIOLOGY OF OPHTHALMIA IN THE NEW BORN.

Read at a meeting of the Milwaukee Medical Society, February 11, 1893.

BY H. V. WÜRDEMANN, M.D.,
OF MILWAUKEE, WIS.

Much has been written upon the subject of ophthalmia in new born infants, especially as regards prevention and treatment. To the teachings of Credè,² Valude¹ and others may be ascribed the lessened percentage of cases following their methods of prophylaxis. Individual experience on any subject, however well established, is of value, but I will limit my remarks to the etiology of the conjunctivites of infants.

In many children the edges of the eyelids are slightly red for a few days after birth, and there may be a little sticky secretion which disappears under simple means, as washing with lukewarm water and vaseline. This condition should give rise to no uneasiness on the part of the attendant, but of course the case should be watched. Some infants contract acute catarrhal conjunctivitis which differs but little from that in adults, and likewise, in a small proportion of cases, may pass into a sort of follicular conjunctivitis. This is the milder form of ophthalmia which demands our attention in this connection. The other is that to which the term blenorrhœa neonatorum may be properly limited. Some authors³ arbitrarily divide this into two classes; the severe type in which the gonococcus of Neisser⁶ is generally found, which has a tendency to increase in severity and invade the cornea, and a milder type in which a bacillus³ (discovered by Weeks,) is prominent among the other microorganisms, and which tends to recovery. However this may be, in my experience all cases in which there is a purulent discharge seemed alike in nature, and even where gonorrhœal infection was known the cases differed in severity. I think that the majority of cases, if neglected, would tend to ulceration of the cornea, the immunity of the others depending upon the resisting power of the tissues. In all instances various microorganisms are found, and even in confessed cases of gonorrhœal infection the peculiar coccus of Neisser may be absent.¹⁰

Blenorrhœa neonatorum is one of the most fatal of diseases to the vision. Horner⁷ gathered statistics from different countries, finding that the inmates of blind asylums made sightless by this disease varied from 20 per cent. to 79 per cent.

Gentlemen, as you well know, vice and neglect may creep into the residence of the rich as well as into poverty's abode. The infant leaves the warm, dark and comfortable environment of its mother's womb for the cold and cheerless world, is received perhaps

into the lap of luxury with modern aseptic precautions of the intelligent practitioner, or is tossed in its filth into a bundle of rags. Or mayhap, if born to parents of the working or middle classes, it may or may not be properly attended by a physician or midwife. Besides as a direct inheritance from its parents, the neglect or opposite extreme of ill-directed zeal on the part of the immediate attendants may cause such diseases as infantile eczema, bronchial or other lung troubles, otitis or ophthalmia.

The causes of the milder forms of conjunctivitis in infants are ascribed, as in adults, to either zymotic or chemical irritants, with the addition of special causes appertaining to the environment of the lying-in chamber or negligence of the attendant, as exposure of the child's eyes to glare of light while washing it, wiping face and eyes with soiled and rough towels, the entrance of meconium or urine, the use of poor soap, etc. The vernix caseosa is the natural protection of the child during birth, being particularly abundant about the creases of the limbs, neck and face. In its journey through the genital passages of the mother it becomes well smeared with her secretions. By ill-directed efforts at cleansing these may be carried into the eyes, and even if not septic may give rise to some irritation. It is the consensus of opinion that nearly all of the severe cases are of gonorrhœal origin, arising from the morbid secretions of the mother. Inoculation with normal natal secretions has not given rise to the disease.^{8 10}

All mothers suffering from gonorrhœa do not infect their new born off-spring, especially if due precautions have been observed by the attendant. Whatever may be the origin of both forms of the disease, the most frequent subjects are weakly children who are exposed to the debilitating effects of bad air, insufficient clothing, insufficient food; in fact among the poor, also premature infants. But are not the mothers of these children prone to leucorrhœa?¹²

The contagion usually occurs after birth, being commonly due to negligence or ignorance of the nurse in washing the infant, whose face and eyes may be cleansed (?) in the same water as that of the body and dried with the same cloth, the vernix being wiped away and the infecting material wiped in. Where the child is not washed at once, but left in its filth, smeared with lard, goose grease, skunk oil, angleworm oil or what not, the entrance of contagion is even more obvious. I was brought up to believe that all cases of ophthalmia in the new born might be ascribed to neglect on the part of the nurse or accoucheur. This is an extreme view, and I now think that infection may take place in the specific form at any time after the rupture of the membranes. Face presentations are particularly liable¹⁰ where the element of contagion is present. Statistics on this point are difficult to obtain in private ophthalmic practice, thus but few notes will be found of the presentation in my account of cases.

The affection may occur the first moment that the child opens its eyes, even before birth in the genital passage or even in the uterus itself, as in a case reported by Nieden¹ of a child born in the membranes where the amniotic fluid was infected. In three of my cases (delivered by physicians noted for the care bestowed upon their accouchements), where the gonorrhœal element was known to exist and where the usual prophylactic precautions were instituted, the infection undoubtedly occurred before birth.

The disease may likewise arise some days or even weeks after birth, from the fingers of the nurse, mother or child, towels, etc., soiled with the maternal secretions. Where the infant occupies the same bed with the mother, soiled bedclothes may be a carrier of the contagion.⁴ It must be remembered that gonorrhœa may only be propagated by actual contact of

that efficient treatment may be given the child. Of course this disease is more common among the lower classes, who are prone to neglect the disease until too late, or to follow out the cleansing and other treatment in a perfunctory sort of way, unless their minds are sufficiently impressed with the responsibility of the case. Many children are brought to the physician after the cornea has collapsed through ulceration, the case being looked upon by the midwife as a "cold in the eyes," and treated by poultices or other uncleanly applications.

It has been said that a non-specific vaginitis in a perfectly irreproachable individual may produce a typical gonorrhœa in the male. Likewise an ophthalmia may result from leucorrhœa in the mother. However this may be, the gonococcus of Neisser is found⁹ in the great majority of cases of malignant ophthal-

SIMPLE CONJUNCTIVITIS.

Number. Name.	Occupation of Male Parent.	Reported Date of Begin- ning.	Age at First Consultation.	Duration After Consultation.	Attendant at Labor.	Supposed Cause.	Result and Remarks.
1. G . . .	Plumber	3 day . . .	3 days	2 weeks . . .	Physician.	Negligence in washing.	Health.
2. L . . .	Merchant	2 week . . .	3 weeks	2 " . . .	" . . .	Exposure to light . . .	" (much vernix).
3. D . . .	"	Birth . . .	3 days	1 week . . .	" . . .	" . . .	" . . .
4. P . . .	Dentist	2 day . . .	3 "	2 weeks . . .	" . . .	" . . .	" . . .
5. G . . .	Machinist	2 day . . .	6 "	2 " . . .	" . . .	Negligence in washing.	" (muco-purulent discharge).
6. F . . .	Physician	Birth . . .	1 day	2 " . . .	" . . .	Slight leucorrhœa . . .	2 months later had follicular conjunctivitis.
7. M . . .	Saloon	5 day . . .	7 days	1 week . . .	" . . .	Exposure to light . . .	Health.
8. P . . .	Coal	3 " . . .	5 "	4 weeks . . .	Midwife . . .	Negligence in washing.	{ Twins { Health.
9. P . . .	"	3 " . . .	5 "	5 " . . .	" . . .	" . . .	{ Child died 10th day.
10. S . . .	Dentist	7 " . . .	16 "	2 weeks . . .	Physician.	Exposure to light . . .	6 weeks later had follicular conjunctivitis.
11. K . . .	Drug clerk	8 " . . .	10 "	2 " . . .	" . . .	Infection from nurse with dacryocystitis.	Health.
12. H . . .	Clerk	Birth . . .	2 weeks	3 " . . .	" . . .	" . . .	" (muco-purulent discharge).

BLENNORRHOEA NEONATORUM.

1. F . . .	Laborer	4 day . . .	3 weeks . . .	Ulcer R. cornea . . .	4 weeks . . .	Midwife . . .	"Whites" in mother . . .	Leucoma R. Clear L.
2. C . . .	Railway clerk	2 " . . .	2 weeks . . .	Ulcer . . . both corneæ . . .	" . . .	Physician.	Gonorrhœa in father . . .	Patient was taken to another physician after I had given an unfavorable prognosis.
3. A . . .	Illegitimate child of a city official	2 " . . .	2 weeks . . .	" . . .	2 weeks . . .	" . . .	Leucorrhœa in mother . . .	Health.
4. H . . .	Laborer	4 " . . .	4 weeks . . .	Ulcer R. cornea . . .	4 " . . .	Midwife . . .	Gonorrhœa in father . . .	Collapse and staphyloma R. Leucoma L.
5. G . . .	Illegitimate child of servant	4 " . . .	4 weeks . . .	Ulcer . . . both corneæ . . .	4 " . . .	" . . .	"Whites" in mother . . .	Leucomata both corneæ.
6. S . . .	Illegitimate child of country girl	2 " . . .	4 days . . .	Ulcer both corneæ . . .	" . . .	" . . .	Gonorrhœa in mother . . .	Child died in 3rd week. Collapse of both eyes.
7. W . . .	Laborer	6 " . . .	6 weeks . . .	Ulcer L. cornea . . .	6 weeks . . .	" . . .	Gonorrhœa in father . . .	Leucoma L. Clear R.
8. C . . .	Laborer	2 " . . .	2 weeks . . .	Ulcer R. cornea . . .	8 " . . .	" . . .	" . . .	" . . .
9. D . . .	Plumber	2 " . . .	4 days . . .	" . . .	4 " . . .	Physician . . .	" . . .	Face presentation; both corneæ clear; child died few weeks later of pneumonia.
10. B . . .	Laborer	2 " . . .	5 weeks . . .	Ulcer . . . both corneæ . . .	7 " . . .	Midwife . . .	" . . .	Leucoma R. Collapse L.
11. K . . .	Illegitimate child of newly arrived emigrant	2 " . . .	4 days . . .	" . . .	" . . .	" . . .	" . . .	Seen but once.
12. Hospital case.	Illegitimate child of "kept" woman	Birth . . .	4 " . . .	" . . .	" . . .	Physician.	"Whites" in mother . . .	L. O. A. Presentation. Child died in 3rd week. Collapse of both eyes.
13. Hospital case.	"	1 week . . .	5 " . . .	" . . .	2 weeks . . .	" . . .	Contagion carried by nurse from No. 12 . . .	Health.

the virus in a fresh state with a mucous membrane. Yet round-about methods of infection are known, as house flies⁴ being the carriers from one infant or from soiled clothes to another's eye. The picture of a sick infant with its face covered with flies is common in the hovels of the South in hot weather. In hospitals, the attendants, be they ever so careful, may infect other children. Thus special nurses should be retained and the cases isolated. The virus seems attenuated by being carried from one child to another, the resulting cases being lighter as a rule.

The original factor in this disease is the father's lapse of virtue by which he acquired a specific urethritis. With him it is advisable to speak plainly, to handle the subject with bare hands, to make him acquainted with the results of his iniquity, in order to inspire in his mind sufficient interest in the case

mia. The origin of some of these might perhaps be traced as in the following, which is vouched for by a friend of mine as occurring in his practice:

The father had been apparently cured of gonorrhœa six months before marriage, and the child was born after over a year of married life, he himself remaining free from urethritis and his wife being apparently well. The child developed a severe case of ophthalmia neonatorum which ran the usual course. When the child was nearly well the father applied to the same physician with acute urethritis, denying *in toto* all exposure. The man had probably never been cured of his first gonorrhœa. This brings up the question of the viability of the gonococcus and its retention for indefinite periods within the vaginal folds of the mother without the production of an appreciable amount of vaginitis. This may be so,

as some women are apparently immune to the ravages of the gonococcus. Note some women of the town who are apparently free from gonorrhœa, and yet who occasionally infect some of their visitors, while the majority escape.

I append an abstract of twenty-five recent cases of conjunctivitis in new born infants seen in private practice, from which some of my statements have been deduced, others being duly authenticated.

The small number of cases of catarrhal conjunctivitis in proportion to those of the graver disease may be remarked, as the lighter form is of common occurrence, while the blenorrhœa is relatively rare. This may be explained by the fact that most of the latter ultimately apply to the specialist for treatment, while the lighter forms being readily subdued by the attendant or by household remedies, or getting well without treatment, do not usually call in a physician for the eye affection. In eleven of the cases of infantile catarrhal conjunctivitis the labor was attended by a physician, and in the other by a midwife. All of these cases were seen by wish of the medical attendant. The cause of three cases was believed to be due to the exposure of the child's eyes to light; one to infection from a nurse who had dacryocystitis; five to carelessness of the nurse in washing child, etc.; in one the mother had a mild leucorrhœa, and in the other three no cause could be ascribed. Two of these cases were muco-purulent, and two others suffered later from follicular conjunctivitis. In all the catarrhal symptoms yielded to treatment within a few days and at no time presented any corneal complication. All of these cases were in the better class of patients.

It will be noticed that the majority of the cases of blenorrhœa neonatorum occurred in children whose parents were of the lower walks of life. Five of these children were illegitimate. In seven cases the father acknowledged having gonorrhœa within several months before the child's birth, and in one case the mother. In four the mother said she had "whites," and as three of these children were illegitimate, gonorrhœa was possible. In the thirteenth case the contagion was probably carried by the nurse who was attending No. 12 in a neighboring bed. The majority of these were delivered by midwives, presumably without proper precautions. In three of the cases (Nos. 3, 9, 12) delivered by physicians, prophylactic measures *a la Credè* did not afford immunity. Two of the children died of marasmus after loss of both eyes. One of the others was so depleted by the long course of suppuration that it succumbed to pneumonia within a few days of the commencement. Ulceration occurred in fourteen eyes, of which the vision in nine was subsequently lost. The majority of the cases of blenorrhœa applied for treatment after ulceration of the cornea had set in, and when the parents had lost faith in the ability of the midwife to handle the affection.

805 Grand Ave.

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- ³ De Schweinitz, "Diseases of the Eye," 1892.
- ⁴ Fuchs, "Augenheilkunde," 1889.
- ⁵ Horner, "Krankheiten des Auges im Kindesalter," Hdbh. d. Kinderkrankheiten," 1879.
- ⁶ Neisser, Centralbl. f. Med. Wissensch., xxviii, 1879.
- ⁷ Nelden, "On a Case of Blenorrhœic Conjunctivitis in a Child born in the Membranes," Zehender's Monatsbl., xxix.
- ⁸ Noyes, "Diseases of the Eye," 1890.

⁹ Panas, in discussion of Ref. 1.

¹⁰ Schmidt-Kimpler, "Augenheilkunde," 1889.

¹¹ Valude, Ann. d'oculist., cxi.

¹² Walton, "Diseases of the Eye," 1875.

RUSH MEDICAL COLLEGE

The fiftieth annual commencement of Rush Medical College was ushered in this year by unusual ceremonies. The corner-stone of the new Biological Department was laid by the trustees and the faculty, addresses being made by Professors Holmes, Hamilton and Miller. After the addresses, Prof. Nicholas Senn held a clinic from 10 to 12. At 2 p.m. the usual exercises were held at the Academy of Music.

Prof. Hamilton's address is as follows:

THE CORNER-STONE OF THE NEW BIOLOGICAL DEPARTMENT OF RUSH MEDICAL COLLEGE.

BY JOHN B. HAMILTON, M.D., LL.D.

Mr. President of the University, Professors and Alumni of Rush Medical College:—To-day marks an event which we trust may begin a new era in the history of Rush Medical College.

We here with simple ceremony, in the presence of those interested, lay a corner-stone. On that corner-stone we propose to erect a superstructure and dedicate it to the welfare of mankind.

This is the age of realism. The age of symbolism has gone. You will, therefore, see in that superstructure that is to be, no rich entablature, ornate columns, nor peristyle. You will not see the statue of Æsculapius with the Apollonian rod in one hand, the fir cone in the other, nor the image of the goat that nourished him in infancy, nor that of the faithful dog that guarded his juvenile slumber; nor the cock the emblem of early vigilance, nor the statue of Prosperity, nor that of Dreams.

These in past ages were indeed the mute but ornamental occupants of the Æsculapian temples. Our students do not need the visible emblems of sentiment to urge them. We simply appeal to their love of truth. Truth for itself, and truth for the benefit of the human race.

In the enlargement of the teaching facilities of this college, Mr. President, the faculty have undertaken the work unaided. They will not be unrewarded for their sacrifices, if they succeed in giving the students such improved means for the prosecution of their studies as may the better equip them for the combat with disease, and the relief of human suffering.

But they have even higher hopes. They hope to stimulate in their pupils a further research into the vast area of the unknown. The faculty do not intend or wish to have a monopoly of the medical knowledge to be stored here. They wish this new laboratory to become a treasury, wherein scientific knowledge may be collected, and from whence it may be distributed.

To that end we establish this biological department of Rush Medical College. We shall here have improved facilities for the study of anatomy, the experimentation of physiology, practical demonstration in normal and pathological histology, and the recent addition to medical science, bacteriology.

Some discoveries in medical science have made epochs in medical history. We are now in the second decade of the great epoch inaugurated by Pasteur's immortal discoveries. No truth in medicine, since the discovery of the circulation of the

blood, has been so far reaching as that of the existence of pathogenic organisms. It has caused a radical change in our doctrines of the causation of a large class of diseases. It has revolutionized the practice of surgery. It has made new operations possible, and has saved thousands of lives. It has reëstablished the practice of quarantine on a scientific basis. It has wonderfully stimulated the study of hygiene in all its departments, and destroyed the fear of epidemics, provided only that scope be given for the free practice of the preventive measures demonstrated to be necessary.

Biological study is not only one of the highest practical utility, but it has beauty and boundless interest. When the student begins to study cell formation, the geometric arrangement, and the wonderfully beautiful colorings and kaliedoscopic chemical changes sometimes developed under his vision, he soon feels with the poet that

"The meanest floweret of the vale,
The simplest note that swells the gale,
The common sun, the air, the skies,
To him are opening paradise."

With the construction of the biological department we shall be enabled to relieve, to a certain extent, the overcrowded building now occupied, and for some years at least, we shall be able to keep abreast of the more favored institutions.

It is not asserted that we have yet reached our ideal—far from it. There is no endowment for the chair of the new director, nor indeed for a single chair in the institution, and the interior equipment of the new laboratory might well be the object of large expenditures.

Chicago, although enterprising and generous, is still young. Her industrious citizens have had so many worthy objects of their attention that the needs of this college have escaped their notice. Boston, New York, Philadelphia, Baltimore, San Francisco, and even Cleveland have been more fortunate, for in each of these places gentlemen have come to the front to place their medical colleges in the first rank.

The ability of Brainard, the brilliancy of Gunn, the Herculean labors of Parkes and their colleagues, have made the past of Rush Medical College a glorious memory.

Notwithstanding the adage, that "an acre of performance is worth the whole land of promise," we may fairly express the hope that the new department, the genius of Senn, the devotion of the faculty, and mayhap the wisdom of some as yet undiscovered local philanthropist, may give the school an even more glorious future. A school to which will cling lasting and pleasant memories of days well spent, and one which the alumnus of the future may, with true filial devotion, seek to revisit at each annual reunion.

THE ATMOSPHERIC TRACTOR IN OBSTETRICS.

Read before the Iowa Union Medical Society at Cedar Rapids, June 14,
1892.

BY T. J. SHUELL, M.D.,
OF PARNELL, IA.

There was a time, not many decades ago, when the regular profession was probably too conservative. There was a time when anything new whether in therapeutics or surgical appliances, was looked upon

as savoring of quackery. But I believe that now we have reached the opposite oscillation of the pendulum, and that we are too prone to give credence to the claims of every new drug, and to try every new appliance, surgical, obstetrical or gynecological. Leading drug houses have enriched themselves by reason of our credulity; leading instrument makers have amassed shekels upon the "fads" termed "the recent inventions in surgical appliances."

When put into the crucible of clinical experience some of the drugs put forward in the last quarter of a century have come to stay, whilst the great majority have fallen into deserved desuetude. Some surgical, obstetrical and gynecological instruments and appliances founded upon strict anatomical knowledge, and in accordance with the physical laws of Nature have been welcomed by the profession, while the majority live only by their number in the patent office.

As one of the inventions of late years destined to stay and to assist nature during the throes of childbirth, and thus prevent pathological conditions too frequently a sequel of parturition, I regard the atmospheric tractor. As this instrument has not been upon the market much longer than a year, it is possible that some of you may not have seen it. This instrument consists of a rubber disc intended for application to the presenting part of the child, and maintains its hold on the principle of atmospheric pressure.

We all remember that lesson taught us in our early readers, "How a fly walks on the ceiling." In that we learned that the pressure of our atmosphere, or air, is about fifteen pounds to the square inch. This pressure is equally in all directions. If through any means we can exhaust the air from any definite area, the outside air will press in the proportion of fifteen pounds to the square inch to fill the vacuum thus formed. This is the principle observed every day in our syringes and in our aspirators. This is the principle referred to above by the fly walking on the ceiling. This is the principle illustrated by various cephalopods and cuttle fishes clinging to the rocks and seizing upon their prey.

Over forty years ago, Sir John Y. Simpson referred to this principle and believed it could be made of practical use in obstetrics. He employed it successfully, though in a rude form, using a metallic speculum fitted with a piston.

The instrument I will show you to-day has five square inches of surface. If we could create a perfect vacuum the traction force of this instrument would be seventy-five pounds. But such a result is impossible, even with our finest air pumps. Taking in view these difficulties in apposition and exhaustion, we may safely say that the atmospheric tractor will exert a force equal to half of seventy-five pounds.

Such a force is amply sufficient to deliver any child, unless the head be abnormally large, the maternal passages unnaturally narrowed, or the bones of the pelvis distorted. But our obstetric forceps will fail in these cases. Because when we use the forceps we add, at the least estimate, about one-fourth of an inch to the width of the head, and the dreaded options are given us of craniotomy or Cæsarean section.

I will not claim for the atmospheric tractor that it will effect delivery in every case in which the for-

ceps will deliver; because I believe there are cases in which the compressive power of the forceps will more than counterbalance the additional width that they add to the head. I do, however, believe that the atmospheric tractor will in the future, be the instrument to accelerate labors in that great class that are found between easy labors and dystocia.

I believe that I am no exception to the average class of physicians when I say that I dread the so-called "dry labors;" that I dread high forceps delivery; that I am reluctant to insist upon the use of forceps against the expressed opposition of relatives; that I am sometimes fearful that they may produce rupture of the perineum in primiparae. How often do we see in our medical journals the statements of reputable physicians to the effect that they had attended a thousand or more cases of labor, and never had to resort to the forceps, and who tell you that labor is a physiological process, and advise you "to let nature alone."

On the other hand how often do we meet physicians who want to use the forceps in every second or third case in order to hurry up things and "show off!" Between these extremes we should draw the golden mean.

The majority of our best obstetricians nowadays, use the forceps twenty to fifty times in every 1,000 deliveries; and are candid enough to admit that there is an immediate or remote danger to mother or child in every case in which they are used.

I don't believe in the indiscriminate use of the forceps—it has contributed as much as any other cause to the specialty of the gynecologist. I don't believe in the "do nothing" plan; because I know that we can assist in parturient cases without doing injury to mother or child. I don't believe in heroic doses of ergot in the first and second stages of labor; nor in pushing chloroform to somnolency, or to a very opposite effect—wild intoxication.

Yet, I do believe in assisting labor. I believe that every second or third case of labor needs assistance, and I believe that such assistance can be given, without injury to mother or child, by the use of the atmospheric tractor.

I have used the atmospheric tractor for about a year, and have employed it in about twenty cases. It will do away with the tedious waiting of "dry labors"; it can be applied at the superior strait very readily when the first stage has been completed, and thus obviate the necessity of high forceps delivery.

It will revive the pains when they have grown feeble or altogether disappeared. It will prevent rupture of the perineum by assisting in enucleating the head during the interval between the pains. It does not act on the principle of an adhesive plaster applied to the scalp; the vacuum formed by the resiliency of the rubber, and by traction, holds it in close apposition to the bones of the cranium. Strange as it may appear its application, even without traction, will cause the head to descend. This point was illustrated in several of my cases; the head descending rapidly upon the application of the tractor without traction. I can explain it only on the principle that the atmospheric pressure was relieved from a part of the head, and the partial vacuum thus formed caused the head to move in the direction of the tractor.

The tractor can be used in breech presentations as well as in head presentations; I made a trial of it in

two such cases where it materially assisted. It can do no harm. It will not mark the child; it will not tear off the scalp; it will not suck out the child's brains.

Strict antiseptic precautions may be used with it as well as with any other surgical instrument. The only difficulty I have ever experienced was in its application; the traction force, if care be taken to secure apposition at the beginning of a pain and traction during the rest of the pain, was all that I could desire. Where the external passages are narrowed (as in the case of primipara), or where the os is only partially dilated, it is difficult of application. Care must be taken not to attach it to the anterior lip of the uterus during incomplete dilatation.

By doubling the disc between the forefinger and thumb these difficulties may be overcome.

There are two patents of this instrument by a physician in Philadelphia; in one, apposition is maintained by the resiliency of the rubber; in the other, by an exhaustive air pump. I prefer the former. There is still probably considerable room for improvement. The only object in presenting this paper is the good of humanity and of the medical profession at large, and to maintain that the principle of the atmospheric tractor is in accordance with the physical laws of Nature.

TWO CASES OF STERILITY AND IMPOTENCE FOLLOWING THE LEFT LATERAL OPERATION FOR STONE.

BY ORVILLE HORWITZ, B.S., M.D.,

Clinical Professor of Genito-Urinary Surgery and Venereal Diseases in
the Jefferson Medical College, Surgeon to the Philadelphia
Hospital, etc.

Two cases of impotence and sterility coming under the care of the writer were produced by the performance of the left lateral operation for stone, and it is presumed that their histories would not be uninteresting to the profession, and possibly prove an additional reason for resorting by preference to the super pubic operation.

Case 1—G. L., clerk, age 29. Married. First seen November, 1891. States that he was in perfect health as far as his sexual functions were concerned, up to the spring of 1890, when suffering from stone in the bladder, he was operated upon by one of the prominent surgeons of the city, who performed on him the lateral operation for lithotomy.

He states that the stone was very large and that it required a good deal of force and trouble to remove it. After the operation he remained an invalid for the space of six weeks; a fistulous opening remaining, which continued for three months, discharging a few drops of urine, whenever he was called upon to micturate. The opening finally closed without surgical aid.

After he had become convalescent he found that his virile powers were much impaired. His erections were weak and flabby; frequently subsiding before intro-mission, and when he succeeded in having an erection sufficiently vigorous to permit the sexual act, no emission followed. His desire for sexual intercourse was unimpaired. As time went on his erections became more and more feeble, until, at the time of his first visit to the writer he had altogether lost sexual power; although desire was still strong, he had not made an attempt at cohabitation, nor had

he had a nocturnal emission for the previous six months.

The penis and testicles were normal, the wound in the perineum was closed, and not in the slightest degree sensitive. On examining the urethra, by means of an endoscope, the cicatricial tissue resulting from the operation was found to extend from the membranes to about half the length of the prostatic portion of the canal; there was a great deal of congestion as with marked hyperæsthesia. The bulbous explorer brought away some mucous. The urine contained some casts of the prostatic sinuses. The normal calibre of the urethra was 33 F; the meatus, 26 F.

The treatment consisted in enlarging the meatus up to the full calibre of the canal, and beginning with a number 26 F bougie, passing it every third day, and gradually increasing it as the pain and congestion of the deep urethra diminished until it reached 35 F. It is believed that to permanently cure hyperæsthesia the urethra must be over-distended. The patient was likewise instructed to use hot baths; to pay great attention to the regulation of his bowels, and to take sixty grains of the bromide of potassium at bed time for the space of three weeks.

At the end of four months the congestion of hyperæsthesia had disappeared, and the individual began to have healthy, vigorous erections in the morning. He was placed upon the use of chloride of gold and soda, together with strychnia in doses of a twentieth of a grain each, to be taken after meals. Cold local baths were now used, and the constant current passed for twenty minutes daily extending from the lumbar portions of the spine through the penis, testicles, and perineum. In addition, exercise daily was directed for an hour at the gymnasium.

Under this treatment, continued for six months, an entire cure of the impotence was effected, but a condition of aspermatism has remained. When the orgasm takes place, there is a slight discharge from the urethra, of mucous with prostatic secretion which contains no semen.

He was warned to be careful with regard to sexual excess, and informed that he would always remain sterile.

The second case was that of a young man twenty-six years old; unmarried, who had enjoyed perfect health up to three years previous to his first visit to the writer.

He had been treated for the space of two years for what his physician called cystitis; when he was examined by a physician who detected a stone in the bladder, which was removed by the left lateral operation. When he regained his health some four weeks after the operation, he discovered that his sexual power, which was normal before the operation, had become very feeble; the erections were infrequent, flabby and transitory. He had had no emission since the operation. The erections became more and more feeble, and farther and farther apart as time progressed.

It was a year after the operation that he paid the first visit to the writer, at which time he had not only lost all power of erection, but his sexual desire had entirely ceased. His condition so affected his mind that he was in a most distressing hypochondriacal condition. There was marked neuræsthenia. He was pale, thin, with a coated tongue, constipated

bowels, cold, clammy skin, especially effecting the hands and the feet. His expression was careworn, anxious and gloomy, with hebetude. He was unable to apply his mind to anything requiring serious thought, and did not for a moment forget his trouble. Local examination showed pretty much the condition described in the first case.

The treatment was the same as that observed in the first case, and every effort was made to arouse and interest the patient, without avail.

After three weeks he left the care of the writer and placed himself under the care of other practitioners. He became the prey of numerous quacks, and when last heard from was in seclusion in a private asylum.

As this was a form of impotence which is classed under the head of the variety of the paralytic form, where both power and desire are lost, and which is frequently associated with hyperchondriasis, an unfavorable prognosis was given to the friends of the unfortunate individual; especially was it adverse, as the aspermatism was due to injury, a condition beyond our aid.

In both these cases the individuals were sexually strong and vigorous prior to the performance of the lateral operations, and became sterile and impotent only after they had submitted to the surgeon's knife. Is this not a good reason for advocating the high operation whenever practicable?

SURGICAL THERAPY OF RECTAL CANCER.

BY THOMAS H. MANLEY, M.D.,

OF NEW YORK.

The comparative values of the different operations for rectal cancer—tentative and radical—may be gathered from the published records of various surgeons.

In the London Hospital, from 1872 to 1880, thirteen colotomies for cancer were performed, with nine deaths. During the same time, says Cripps,¹ twenty-six such operations were performed at Guy's Hospital, with eleven deaths—a mortality of about 42 per cent. It does not appear whether this was an operative mortality, or whether those were simply classified under "mortality" who died before leaving the hospital. Allingham gives twenty-seven colotomies, with a mortality of 11 per cent.

Cripps says of colotomy, that in some it affords relief from pain, while in others it has failed to do any good. Of course, in *complete* intestinal obstruction, a colotomy *must* be done.

Of later years, in France, Pinault, Velpeau, Récamier, Massé, Chassaignac, Maisonneuve, and in Germany Freinonze, Nussbaum and Schnh, revived the operation of rectal resection for cancer; and in England Paget, Jordan, Holt, Allingham, Gray and Holmes gave it their support.

In Cripps' Jacksonian essay on thirty-six recorded cases of extirpation, per rectum defecation became normal in twenty-three, could not be retained when fluid in six, and incontinence continued in only seven.

In all cases it appears that incontinence is the rule immediately after operation, but as the wound heals, control is regained. Retention of the feces, however, *is possible* in many instances even after the entire sphincter has been cut away.

In another table of Cripps', we find of sixty-six

¹ Cripps on Rectal Cancer, Ed. 1, p. 212.

recorded cases of extirpation; forty-four recovered and eleven died—a mortality of 17 per cent.

Préchaud's tables,² made up from his own cases and the records of several other operators, give 149 observations on rectal cancer extirpations, of which there were 103 operative cures (69.13 per cent.). Immediate relapse in 3; doubtful result in 7; operative deaths in 36; 69 relapsed after one year; 15 relapsed after two years; 2 relapsed after three years; 5 relapsed after four years; 5 relapsed after five years.

Hence, from the above, we must assume that, five years after operation, none but six could be accounted for—or about 4 per cent. of all.

Charron gives us a table of results in 139 cases of colotomy.³ Of these 8 were missing and could not be accounted for; 54 died within two months; 65 lived from two months to one year; 5 lived from twelve months to eighteen months; 3 lived from one year to two years; 6 lived two years or more.

It would appear from the above table that, in the results as far as prolongation of life is concerned, there is little difference ultimately.

It does not appear from these tables whether those who died succumbed through a *local* recurrence of the malady, or as the result of a generalization, or metastasis.

It is a matter of common observation that when local, superficial epithelial growths are completely swept away by caustics or the knife, the disease most commonly recurs *rather in the internal viscera* than at its original site.

The question, then, to determine, in a given case of cancer, is *not* what operation will eradicate the malady?" for *that* is clearly quite out of the question, but rather, "which will afford a temporary cure, and give the patient the greatest amount of *mental quiet* and bodily comfort; so that when the end comes, it may be painless:" as we know is commonly the case when death is due to cancer of the internal organs.

On the main points which the question involves, modern surgery has made possible a quite general accord of opinion among operators.

302 W. Fifty-third St.

TRICHLORACETIC ACID; AS A TEST FOR ALBUMIN; AS A CAUSTIC; AND AS AN ASTRINGENT.

BY Q. C. SMITH, M.D.,
OF AUSTIN, TEX.

As bed-side tests for albumin in the urine, the test-papers put on the market by manufacturing pharmacutists leave little to be desired, as to convenience. But for office use, the most convenient reagent we have used for the quick, certain and ready test for albumin in the urine, is trichloroacetic acid.

Place two to four drachms of suspected urine—filtered, if necessary—in a small graduate glass, drop into the urine one or two small crystals of the acid, gently stir the urine with a small glass rod, aluminum probe or clean splinter of wood; and if albumin be present in appreciable proportion, it will quickly settle at the bottom of the glass, as a white flocculent deposit.

The proportion of albumin can thus be quickly

estimated, per volume, by reading the graduate marks, sufficiently accurate for ordinary purposes, consuming only a very few minutes, little trouble or expense, or skill.

As a *caustic*, trichloroacetic acid is a valuable, convenient and easily manageable remedy.

Wipe the affected part *dry*; dip the tip of an aluminum, gold or wooden probe—*naked* if the affected surface be *small*—in a saturated solution of the acid, and touch the parts with the charged tip, and soon as the medicated surface begins to turn *white*, again wipe the part *dry*—if indeed it is not already dry, as it often is, from the effect of the medication. The saturated solution of trichloroacetic acid is not so diffusible as nitric or chromic acid, and therefore more easily manageable, and its application is much less painful than other chemical caustics, or the thermo-cantery. It is well suited for killing naso-pharyngeal and other neoplastic and fungous growths and hypertrophies; as those of the vagina, uterine cervix, venereal warts, pile tumors and polypous growths.

And when *well diluted*—according to the purpose for which it is to be used—it is a most valuable *astringent* to apply to suppurating sinuses and surfaces, and for injections in the latter stages of gonorrhœa, in male or female. Before applying the acid, as a *caustic*, to very sensitive parts, it is well to cocaineize the part for a few minutes before the acid is applied.

I have been using trichloroacetic acid for the purposes mentioned for about two years, and find it a very convenient and effective remedy.

617 Colorado St.

SOCIETY PROCEEDINGS.

The Medico-Legal Society of Chicago.

Regular Meeting, March 4, 1893.

DR. DANIEL R. BROWER, VICE-PRESIDENT, IN THE CHAIR.

Harold N. Moyer, M.D., read a paper on

REASONABLE DOUBT AND PREPONDERANCE OF EVIDENCE
IN MEDICAL JURISPRUDENCE.

Theoretically the medical jurist is not concerned with legal interpretations or distinctions. He is expected to ascertain facts, to weigh them and to present a well considered opinion for the guidance of the court and jury. His sole necessary qualification for this office would seem to be a thorough knowledge of the elementary medical sciences and complete acquaintance with the special subject regarding which he is expected to give testimony. While these qualifications will ever remain paramount, we hope to show in the course of this paper how important it is for the medical jurist to comprehend and apply some of the elementary rules regarding the weight of evidence.

The medical witness bases his opinion upon facts, but these facts are not necessarily of equal importance. For instance, a patient may present himself to the physician with the statement that he has lost flesh, that he has a cough, and night sweats. If on examination loss of motion over the upper portion of one lung is found, together with bronchial breathing, and if in addition an examination of the sputum shows the presence of the peculiar bacillus, a diagnosis of tuberculosis of the lungs may be made with absolute certainty.

The diagnosis in such case would, if the above case was a matter of contention in a court of law, become the opinion,

² Préchaud's "Cancer du Rectum," p. 126.

³ Charron, "Maladies du Rectum," p. 112.

and the symptoms would be the facts on which it was based. It is apparent that the symptoms present an increasing definiteness, from the loss of flesh, night sweats, cough, loss of expansion, bronchial breathing and presence of the bacillus, and they have a corresponding value in formulating the opinion or diagnosis. If we begin at the most positive end of our series, and strike out in successive order first the bacillus, then the bronchial breathing and loss of motion, we have reached a point in which the opinion becomes doubtful, and where differences may naturally arise. It is precisely in these doubtful cases that the opinions of medical men are sought. Where the facts are such as to make out a *prima facie* case, the medical testimony is usually perfunctory.

Still adhering to our hypothetical case, would it be possible for one to state on the three symptoms, night sweats, loss of flesh and cough, that a person has consumption? We think in the audience before us there are some who would be willing to give that opinion, and we believe it would not be necessary to go far to find those who would say that a patient presenting those symptoms might have empyema, or abscess of the liver. Such differences of opinion rest therefore on a ranging estimate as to the relative importance of these different facts.

It is precisely such facts, based, of course, on the testimony of others that juries are called upon to weigh, and they are furnished with certain rules or guides to measure the evidence. The most important of these instructions relate in criminal cases to reasonable doubt; the jury is told to acquit if, on consideration of all the testimony, it is sufficient to raise a reasonable doubt of the guilt of the accused. The measure of this doubt is usually and best stated that it should be of such a character as to satisfy one to such an extent that he would act upon it in his own most important affairs. It is not every violent presumption, or strained statement, that is to be tortured into a reasonable doubt, but such facts as would cause one to hesitate in the presence of some important undertaking, or divert one from certain purposes in the ordinary activities of daily life.

In civil cases the rule is quite different. There the jury are to decide on the preponderance of evidence. It takes much less proof to hold a corporation for negligence in killing a man than it does to convict a person of murder. Unfortunately, we have no such clear definition of preponderance of evidence as we have of reasonable doubt. Instructions on this point are generally given somewhat with reference to the circumstances of the particular case. The jury are not to be guided by the number of witnesses but the general circumstances, their credibility, evident freedom from bias and other factors. Bearing these matters clearly in mind, they are to decide in favor of that side which presents the strongest probability. These distinctions in civil and criminal jurisprudence are just and proper, and are the outgrowth of the highest judicial experience. It matters not that they are misapplied or wholly misapprehended by many juries, they must ever remain the very foundation stones of the philosophy of the law.

We may now pass to a consideration of the bearing of these tests upon the practice of forensic medicine. In so far as a physician testifies to facts he is in the same position as an ordinary witness, but by reason of his special training and knowledge he is permitted to testify as an expert and to give his opinions.

Theoretically the law says that every portion of a case must be tried in court and passed upon by a jury. Practically a certain part of some cases are tried outside of the court room. Physicians or others with expert knowledge are allowed to give opinions based upon facts which may never or perhaps cannot be brought into court. It is but a

barren fiction of the law that every such opinion shall be accompanied by a recital of the facts upon which it is based, so that the jury may pass upon its correctness. The fact that an expert is called admits at once that the person having but ordinary knowledge is incompetent to judge of the facts at issue. Of course, cross-examination brings out the facts, and furnishes the opposite side with material with which to rebut or argue as to the correctness of the opinion. The fact remains, however, that about the only thing the jury take with them to their room is the naked opinion. The result is that experts called by one side are offset by a like number summoned for the other side, and this often when there is no real difference of opinion between them. That the real basis of opinion, testimony, cannot always be presented in court, is sometimes admitted by our higher courts. A curious point as to the proper admission of testimony was presented on the appeal of a case where the action was for slander in charging an unmarried woman with unchastity. The defendant in answer alleged that there was such an increase in size and such a change in the physical appearance of the plaintiff as to induce him to believe that she was pregnant. One of the witnesses on his behalf was a woman who had borne children, and who was asked if the plaintiff appeared like women do when they are pregnant. This question was not allowed, and the appeal from the ruling was the main point to be decided. The court held that it was proper to ask a witness his opinion whether a person was drunk, because that fact is better determined by the direct answer of the witness than by any description of the person's conduct, and that there was a similarity between such a case and that where the fact of pregnancy was involved. The court was of the opinion that "if the appearance of the plaintiff, from any cause, was such that women who had had experience would testify that she appeared like a pregnant woman physically, the testimony certainly was important to mitigate the damages to which the defendant might be subjected. And if the plaintiff insists that the witnesses should have stated the facts in detail, in order that the jury might judge whether plaintiff's appearance was like that of a pregnant woman, it is obvious that no description of enlargement of size and the like would convey an accurate idea of the plaintiff's whole appearance. It was therefore decided that it was proper to ask the opinion of the witness whether the appearance of the plaintiff was like that of a pregnant woman.

The possible widening range of opinion testimony is shown in the above decision, which clearly recognizes that many conclusions can be arrived at so complex in their nature that it is practically impossible to give the facts upon which they are based. Particularly will this be true in forensic medicine, where general conditions have so frequently to be stated. Who can give the basis of an opinion that a person was suffering from shock, that cachexia or other diathetic condition was present? The elements of these opinions are based in the entire physical condition of the patient.

These examples are sufficient to show that a certain portion of some cases may be decided outside of the court room, though theoretically such ought never to be the case. Take for example the cause of death as assigned at a post-mortem examination. In those cases where vital parts are injured, or death follows in direct causal relation to the injuries, there can be little question, but where death follows from the remote or secondary consequences, or where grave organic disease is found associated with certain injuries, then we have room for differences of opinion, and it is imperative that we should rigidly apply the legal rules for weighing evidence. During my service as county physician a man was placed upon trial for the murder of a woman over eighty years of age. The evidence went to show that they

had had an altercation, and that he had pushed or struck her and that she had fallen to the sidewalk. From this time on she gradually failed, complained of severe pains in back, and finally said that the nervous shock and injuries received at the time of the assault were the cause of her trouble. About three weeks from the date of the alleged assault she died. At the post-mortem examination the urinary tract was filled with pus, concentric hypertrophy of the bladder was found, both kidneys were simply large abscesses. The condition was such as to show that the predisposing causes of this state of affairs had existed for months or years. To the question as to whether the assault such as described might or would be likely to hasten the death of the individual, it was answered that they would. On cross-examination it was admitted that the old lady might have died precisely as she did had she not received the fall. The accused was acquitted. Another case was that of a man who had been assaulted; in fact there had been a free neighborhood fight in which he took part. He received several blows about the head, one of them causing a slight cut at the lower border of the left orbit. Subsequently erysipelas set in and the man died from blood-poisoning. The erysipelas was probably occasioned by improper dressing and careless management of what was a trivial wound; at the same time it might have been one of those spontaneous cases to which the external wound bore no relation. In this case the accused was acquitted because the writer would not state that death was to be attributed solely to the injuries.

In the foregoing cases the contention was as to the cause of death, which is one of the most important elements in a charge of murder. The question did the wound or injuries cause the death of the person, is one calling for an opinion. It matters not that the elements upon which the opinion is based may be called for, it is possible that they cannot be given, in any event the opinion passes to the jury and may be used by them as a part of their judgement of the case. It seems to us, therefore, that every physician ought to understand and apply the elementary rules of legal evidence. In stating the cause of death which may be part of the *corpus delicti* in a charge of murder he should be convinced beyond a reasonable doubt that the injuries inflicted caused the death of the person, while in deciding the same question in a civil case he would be governed in his opinion by a simple preponderance of the evidence.

An illustration of variance in opinion that may arise from an improper application of these tests occurred in the writer's experience. An accident insurance company recently submitted a case in which a demand had been made on them for a life indemnity. The deceased some weeks before his death received a fall, striking on the side of his head, subsequently symptoms of cerebral pressure developed and he died. Post-mortem examination showed that death was due to a cerebral abscess. The opinion was given from all the facts that the abscess and hence the death was *probably* caused by the fall which he received some weeks before.

The same facts were subsequently submitted to a very competent pathologist who held to just the opposite opinion, maintaining that the insurance company was not liable. In a subsequent conversation with this gentleman he said that his opinion was given in favor of the non-liability of the insurance company because, under like circumstances, he would not be justified in attributing the cause of death to such an injury in cases involving a charge of murder. To the question as to whether the strongest probability was not in favor of the fall having caused the abscess* he answered that it was. It will be seen that in the foregoing instance there was practically no difference of opinion, but the formulated one of liability was directly opposite. The insurance company in this case had no desire to avoid payment but

merely desired to ascertain if they were liable. The state of facts as shown was such as to create a high probability that death was caused by the fall but certainly it was not so far established that it could be stated as having been so caused beyond a reasonable doubt.

As a practicable deduction from this paper I do not wish to be understood as insisting that every physician whose opinions are sought in courts of law should have a legal education, but what I insist upon and which is often lost sight of is that the practice of forensic medicine includes two parts, the law and medicine, and medical men are too prone to lose sight of the legal side of a medico-legal question.

To some, particularly our legal friends, the argument may seem trite, and they may wonder how so obvious a distinction could be overlooked, but on the strength of a very considerable experience in legal medicine I can assure you that in the application of these two rules lies the chief cause of difference of opinion among medical men. Take an ordinary case of personal injury, the question, was the disability under which the patient now labors due to the antecedent accident or not? One physician will insist that every possible explanation consistent with the accident not having caused the condition must be excluded, another will take just the opposite view and will contend that every possible relation in which the accident could stand to the injury must be considered as an established fact. Another will perhaps take the correct view and his opinion will go to the side presenting the greatest probability.

Is it strange that with these varying rules with which they measure the value of their facts, there be such a wide diversity of opinions of medical men?

In conclusion I would sum up my remarks in the following brief sentences:

1. In civil cases the opinion of the medical expert should be in accordance with the most probable explanation of the facts.
2. In criminal cases a greater degree of certainty is required, and this should amount to the exclusion of all reasonable interpretation of the facts not consistent with the opinion given.
3. These two rules are commonly overlooked by medical expert witnesses, with resulting confusion of opinions.

Discussion.

Dr. J. G. Kiernan:—I was very much interested in the paper because in my opinion it strikes at one of the greatest elements of error that underlie much of the absurdity of so-called expert testimony. The very salutary rule of the law that in civil cases a preponderance of evidence is required and in criminal cases a much more positive condition is required is usually reversed by physicians. You must deal with preponderance of evidence on the spot. A member of a medical society of jurisprudence made that blunder. The case in which he rendered the decision was one in which a question of suicide or homicide was involved, and among the factors in the case was the possibility of a man surviving a heart wound long enough to inflict a head wound. It made no difference that there were dozens of such cases in the literature, they were exceptional cases. Until such prejudice in the profession is overcome, expert testimony will bear the odium it still deserves. I know of one instance where a medical man, in defiance of almost the entire surgical profession of Chicago, testified that shock could occur fifteen or twenty days after an alleged receipt of injury. In that case this man did not even take the preponderance of evidence, it was necessary for his theory and the prosecution to show that shock could so occur. If you turn to the records of railroad corporations you will find the

average man will pander on the one side to the corporation and on the other side to the man who is seeking to blackmail the corporation, he will swear directly to an opinion based not on views formed from a scientific standpoint or from a legal standpoint, but from the standpoint of prejudice. With regard to the question of reasonable doubt, I think that the medical profession has long been in advance of the law. In many of our States, to the disgrace of Anglo-Saxon jurisprudence, it is still held that insanity must be proven beyond a reasonable doubt; that thing has been reiterated. It is true that the profession needs rigid reformation in this direction. It is too apt in general cases to deal with the preponderance of evidence rule and too apt in civil cases to reverse this rule. There is that same element running through our jurisprudence and physicians have a deeper interest in it than would appear at first sight. There is not a physician who is not liable to a possible suit for malpractice, and many a physician has deliberately made statements against another physician that were very unpleasant when he came himself to be tried for malpractice.

Dr. Marshall D. Ewell:—On further reflection after hearing this paper I have become convinced, not that Dr. Moyer is wrong, because the conclusions of law he has stated are in my judgment entirely correct, but that the application which has been made to the subject of jurisprudence is not such as the facts of the case require. No one will dispute the statement that in civil cases the rule stated by Dr. Moyer is correct, that the jury in determining whether to find for plaintiff or defendant are to base their verdict upon the mere preponderance of testimony. In criminal cases on the other hand, the rule is quite as well settled, that the accused must be found guilty beyond any reasonable doubt, and the question of reasonable doubt extends not only to the facts but also to the law of the case so that if there be any reasonable doubt either in the facts or in the law, the accused is entitled to the benefit of such doubt. In criminal cases the guilt of the accused must be proved. Neither the mere preponderance of evidence nor any weight of preponderating evidence is sufficient for the purpose unless it proves the fact to the exclusion of all reasonable doubt. Dr. Moyer in his paper states three conclusions which seems to me are not applicable in this connection for the reason that the expert has nothing to do with this branch of the case. An expert put upon the stand, whether it be in a civil or in a criminal case, after hearing a hypothetical question stated or after listening to the testimony, is asked what is his opinion upon such cases as are given in the evidence or question. He is not asked, nor is he required by the question submitted to him, to state whether he arrives at that opinion by mere preponderance of testimony or whether he is convinced beyond any reasonable doubt. In my judgment, his sole duty is to answer the question as it presents itself to his mind whether the case be a criminal or a civil one. In some States, it is required of the expert witness upon the direct examination to state fully the grounds of his belief; in other States, he is simply required upon the direct examination to state his opinion and the grounds of his belief are elicited upon cross-examination. In an experience of twenty-five years I have never known an expert to be interrogated as to whether his belief was founded upon a mere preponderance of testimony or whether a preponderance of facts has led to a certain conclusion, or whether the facts leading to this particular opinion might not be reasonably in doubt. That is entirely the province of a jury who are to listen not only to the direct testimony of the expert including his reasons as given either in direct or cross-examination, and under the charge of the court, in civil cases, are to determine the case on the mere preponderance of testi-

mony, or in criminal cases determine the guilt or innocence of the person upon the principle stated, that the accused must be found guilty beyond a reasonable doubt. So it seems to me the expert has nothing whatever to do with this question, his sole duty is to announce his opinion as formulated in his mind upon examination of the case according to preponderance of testimony. It is his duty upon cross-examination, or direct examination, if the practice of the court authorizes it, to state fully the facts and circumstances upon which such opinion is founded, but the responsibility in deciding the question rests entirely with the jury.

With respect to the other matters of the paper, the facts upon which the opinion is founded, it is quite true that in many cases an expert may not be able to convey to the jury all the facts which influence him in forming his judgment, but if he is asked the reason for his opinion I think he should attempt to do so, and if he does not he detracts from the weight which should be given to his testimony.

Dr. J. G. Kiernan:—I have been repeatedly asked, and I think it is the experience of every expert: Is that your opinion beyond a doubt; have you any doubt in that opinion? Or, if it is a hypothetical question, have you any doubt on that question?

Mr. Marshall D. Ewell:—I have been asked that question, and I have no doubt the courts would find it inadmissible. In my judgment such a question is not proper.

Mr. J. S. Harlan:—From a legal standpoint, it seems to me the position taken by the last speaker would meet with the approval of the lawyer more readily than the position taken by the first speaker. My idea briefly is, that the doctor in expressing an opinion upon a given state of facts, ought to express it with regard to the English rule of law. Take for instance, an injury which may be a case of personal damage or it may be a case of murder, and it seems to me if the physician in one case gives his judgment on the theory of preponderance of evidence, and in the other case gives his judgment upon the theory which obtains in criminal cases, he does to that extent usurp the functions of the jury.

Judge Richard S. Tuthill:—I want to say that I think it would be pretty hard to keep my brother King over there if he was examining a witness, from trying to find out how much of his opinion was positive and how much doubt, and I cannot see how the court could forbid the lawyer to ask any question which would show whether the expert witness was positive in his statement or whether his opinion was merely a possibility.

Mr. J. C. King: On cross-examination where a physician had given his opinion as to what was the cause of the existence of certain things after facts being stated, I would want to know whether he held that opinion so strongly that he would act upon it in a matter which concerned himself, or whether it was an opinion where he had certain doubts. The other questions of Dr. Moyer pleased me very much. I think it is well that physicians should be educated upon those points of legal admissibility of evidence and the legal manner of forming an opinion.

Dr. J. M. G. Carter:—As chairman of the committee on medical legislation appointed by the State Medical Society of Illinois at its last meeting, I would like to make a statement of some work that has been attempted this winter, in which we would be very glad to enlist the interest of the gentlemen present. This committee was appointed to prepare a bill to revise the law concerning medical expert testimony. The desire of the committee on medical legislation was that such a bill should be prepared as will allow the evidence on both sides of the cases in which experts are called to be submitted to the physician, that he may prepare his opinion with all the evidence before him, believing in that way we may get an unbiased opinion from physicians

and that their opinion may be established beyond a reasonable doubt; an opinion, as Mr. King says, that they would be willing to act upon in their own affairs.

Mr. Marshall D. Ewell:—It doesn't seem to me that a Bill of that sort would in the least remove the difficulties which at present surround the expert testimony. The opinion of expert witnesses formulated after a study of the whole evidence might perhaps have a trifle more weight as being accompanied by more deliberation, but it must be decided by the great test of thorough cross-examination under our system unless you propose to change the whole system of the administration of justice and I doubt whether it would in the least improve the present system.

Dr. J. Frank Lydston:—Within the last ten days a case has come under my observation that is an excellent illustration of the fickleness of mind of physicians when called upon to testify as experts as to the cause of death in cases involving legal complications. This was a case in which a claim was held against an accident insurance company to the effect that a certain individual had fallen down stairs and broken his neck. He had gone out on some errand and shortly afterwards was found dead at the foot of a stairway, and it was claimed that he had fallen. At the time of death the report was circulated about the neighborhood that he died of heart disease, but subsequently it was claimed by the family that he died of a broken neck and a certificate to that effect was given by the family physician. The accident company saw fit to dispute the claim and in order to ascertain the facts demanded an autopsy, which was held two or three weeks after the death of the individual and a very thorough examination was made by Dr. Hektoen. It was found beyond a doubt that there had been no accident to the spine or to the neck, there were no evidences of fracture. Nothing was found that could account for the death except myocarditis. A little discussion was held on the subject coming in from the cemetery, and the gentlemen representing the family still maintained that the man was killed by falling down stairs and said he died of shock. It was held in the first place that there was a broken neck but it was shown by the autopsy that that was not the case so they fell back upon the theory of shock.

Dr. H. N. Moyer, in closing the discussion, said: I am exceedingly gratified at the discussion my very brief paper has evoked. I am also pleased with the fact that it has brought out quite a difference of opinion among our legal friends; doctors are said to agree with difficulty or not at all, but the agreement of doctors is a harmonic symphony compared with that of lawyers.

Judge Ewell advanced the same doctrine, that juries are the judges of the facts and the law. I said that was a barren fiction of law, there are certain elements in the case that cannot be brought into court and I know they are not brought there. There are two elements in expert testimony as a rule, sometimes an expert simply listens to testimony and gives his opinion on it, that is all there is to it, but in the majority of cases he examines into facts, makes a post-mortem examination, examines the patient, examines specimens of blood, the stomach or something of that kind, and he presents both fact and opinion. Now I ask in the name of common sense and logic, if the jury is the sole judge of the facts, why permit the doctor to express his opinion, what is the use of it? But if you are going to allow him to express his opinion, why not furnish him with some means by which he is to form that opinion. Take cases of personal injury which I had in mind when I wrote these words, "One physician will insist that every possible explanation consistent with the accident not having caused the condition must be excluded; another will take the opposite view and will contend that every possible relation which the accident could

sustain to the injury must be considered as an established fact." I have met that over and over again. One physician will measure the facts with a foot rule two inch long another will use one fourteen inches long and of course they must arrive at different opinions. It seemed to me when I was county physician that when I brought in an opinion that a person's death was caused by a certain blow he had received, that it was directly attributable to a certain injury I found upon his body, that if I did that thing and was not convinced of it beyond a reasonable doubt, I was guilty of giving false testimony. If I go into a civil case where a railroad company has injured a man and he claims that diaphanous condition known as "spinal concussion," I try to put myself in the frame of mind to try to determine what are the probabilities of the case. It seems to me there is no getting away from the primary proposition of opinion, one doctor says the accident did not cause this condition, the patient is perfectly well. Another doctor says the patient has spinal concussion and is hopelessly injured. If you put these two doctors together to consult over this case, there will not be the slightest practical difference of opinion in a court of law. Simply because they have had a different rule to measure the facts. I believe if doctors would take into account in formulating their opinion the same factors as pertain to legal questions there would be much more uniformity of opinion and we would get better results in forensic medicine.

Dr. Richard Dewey, Superintendent of the Illinois Eastern Hospital for the Insane, read a paper entitled

THE PROPOSED LEGISLATION REGARDING THE COMMITMENT OF THE INSANE.

There are many matters of importance to both physicians and lawyers connected with the commitment of the insane, but I shall confine my remarks mainly to the question of the necessity and expediency of making a jury trial a test of the question of insanity, so far as commitment to an institution for the insane is concerned.

The jury trial is one of the great safeguards of Anglo-Saxon liberty and has its necessary function, but the jury trial has also its element of weakness which have led to criticisms from high authorities upon its value even in ordinary cases, and the jury trial as applied to insanity or coroner's cases presents even greater difficulties. Some of the weak points of the jury trial have furnished the motive for mirth in comedy and opera. The saying about the uncertainty of a jury verdict by a famous legal authority has become proverbial. The "crown's quest" has been a subject of merriment since the days of Shakespeare and the "lunacy quest" might be equally so, but the fact of the great misfortune, often worse than death itself, with which the lunacy inquest must deal.

Insanity has a two-fold relation, with one side of it the physician has to deal. With the other courts and lawyers and the conflict of views is what may be expected from the fact that the physician sees one side of the shield and the lawyer the opposite side, and the views of both have come in collision and will continue to collide until the essential truths relating to both sides have been indisputably established and until all the faults and mistaken ideas of each side have been destroyed. There need be no fear but that which is true will be ultimately discovered and will be permanent while the contentions existing on the opposite sides will each serve the useful purpose of destroying the errors of the other side.

It is known to my hearers that the State of Illinois, by its legal enactment makes it obligatory that all persons who become insane and who are sent to any hospital or asylum for treatment shall appear in court and public proceedings shall be instituted to determine before a jury whether the

individual in question is or is not insane and I will speak first briefly of the effect upon the welfare of the insane of this obligatory jury trial. In the first place, the proceedings are analagous to those taken in a criminal case. A complaint is lodged with the judge of the county. The individual is arrested and brought into court, a hearing is had before a jury, which finds a verdict of sanity or insanity as the case may be. If the latter, the patient is then committed, or one may say, "sentenced" to the asylum, taken charge of by the officers of the law and delivered to the institution in almost the same manner in which a prisoner found guilty of crime is taken to the penitentiary. The effect of this method of procedure is injurious to the patient and creates wrong views in the public mind. I have more than once had letters from judges and officers of court as well as other intelligent men stating that such and such a person had been "found guilty" of insanity or "convicted" of insanity, which is as absurd as saying that an individual has been found guilty of pneumonia, typhoid fever or St. Vitus dance, but the effect of this method of procedure upon the patient is more important. It is exceedingly common for the unfortunate patient in a more or less disordered state of mind to conceive the idea that he or she has been accused of some crime or offence unjustly; found guilty, and sentenced to the hospital for punishment. Again and again patients are heard to say that they have committed no crime and to beg for an opportunity to vindicate themselves. This is most unfortunate for the mental state of the patient, especially if there be any possibility of improvement and recovery, for it operates as a hindrance and a continual source of irritation and disturbance in the patient's mind.

But another great injury which results from the existing method of commitment is that the jury trial and appearance in court acts as a serious delay or a complete hindrance to a large number of patients going to the hospital at all when it is important for their own welfare and that of the community, that they should go, or when so great delay is caused by the repugnance to the jury trial that the patient is not committed in the early stages of the disease and while the case is still curable in its nature, but only after the patience and resources of the friends are exhausted and the case has become chronic. Not a year passes in which scores of cases are not allowed to become chronic and hopeless by this dread on the part of the patients and their friends of the exposure of this sad misfortune to the public gaze in open court. Insanity is no longer regarded as a disgrace by the more intelligent of the community, but all persons possessing ordinary sensibilities and the pride which is natural to all will hesitate long or absolutely refuse to have their misfortune made a spectacle of in court. Furthermore the effect upon the patients of the court trial is exciting and disturbing in a greater or less degree whatever be the form of insanity. The trial often also necessitates great hardship, especially in the rural districts where patients who are sick and feeble have to be taken long distances over rough roads in cold weather to the court and after the court proceedings again take a tedious journey to the hospital.

But whatever the difficulties and the injuries produced by the jury trial, it will be said by the lawyer—and no physician will disagree with him—that the sacredness of personal liberty which the jury is intended to secure is of greater value, and is not to be weighed against any hardships whatever, and here we come to the important question, and the one to which I wish mainly to limit my remarks. The question is whether a jury trial is the best means of determining insanity. Insanity is a disease, and the physician at once says it is no more necessary to subject a question of this disease to a jury than that of any other disease, but the

lawyer replies that insanity is a disease requiring oftentimes that its victim shall be restrained of his liberty, and a "jury of the peers of the sick man must determine the question. It is not a medical but a legal question." The fact is, it is both, and the legal and medical mind should combine their efforts to secure the best possible results. In speaking of a "jury of peers" an inconsistency is brought out, for it is idle to talk about the "peers" of a person suffering from insanity being selected for jury duty. It is as idle in many cases to the mind of the physician as it would be to require a jury affected with rheumatism or mumps to pass upon the diagnosis of those diseases. But we all know that cases exist which are obscure, in which there may be a reasonable doubt as to insanity; and in these cases there should be ample provision against any mistake being made, and if a jury trial or any other measure will prevent mistakes, by all means let it be provided!

Now let us see how much certainty against mistakes is provided by the jury trial, as shown by the records I have obtained from the State Insane Hospitals. The records of the Illinois Central Insane Hospital have not been kept in a way to show the number of mistakes made by juries in the question of insanity, but the Superintendent, Dr. H. F. Carriell, writes me as follows:—

JACKSONVILLE, March 1, 1893.

DR. RICHARD DEWEY, KANKAKEE, ILL.:

My Dear Doctor:—Replying to yours of the 27th ult, will say, I have kept no record of the number of persons who have been sent here and not considered by the officers of the institution to be insane, nor have I kept a record of insane persons who are found sane by a jury but who are really insane.

There have been occasional cases of inebriety, opium and chloral habits that would hardly come under the proper designation as being insane, but I have never gone behind the record in these cases, and have got rid of them in one way or another as best I could.

It has not infrequently come to my notice that insane persons are declared sane by a jury. Cases like the following are not infrequently narrated to me. Patients come to the institution who have been deranged a year or more, and upon inquiring of the friends why they did not bring their friend to the institution at an earlier period, they have replied that they did make an effort at some previous date to have him or her declared insane, but the jury failed to find him or her insane. I have one case in mind of a woman who is now in the institution, and who has been one of the most disturbed and insane patients in the institution for the last year. She was taken before a jury and declared not to be insane, although she had been a patient in this institution on three occasions previously. The friends were so sure that she was insane and that she would soon make such demonstrations as to convince any one of her insanity, that they took her to a hotel and remained at the county seat over night. In the middle of the night she made such a hullabaloo, banged furniture about the room and was so disorderly in general that the next day another jury was empaneled, and the friends had no difficulty in getting her declared as an insane person.

No new developments here. I am suffering from a severe cold, and do not know as I shall be able to go up to Springfield this week. I wish, however, if you come down you will let me know, and if possible I will meet you at the Capital. Yours very truly,

H. F. CARRIELL.

At the Illinois Northern Hospital at Elgin the records show that thirteen cases committed to the hospital by jury verdict were cases in which no insanity existed and the patient was discharged as "not insane." This has occurred in twenty-one years among 4,402 patients. The Illinois Southern Hospital at Anna has received, I am informed by the Superintendent, in the last twenty years, nine persons who were tried by juries and found by them to be insane who afterwards proved to be "not insane" and were so discharged. In my own experience at the Hospital at Kankakee, in fourteen years seven patients have been found "not insane" who were committed as insane by juries. This

out of a total of about 6,000 admissions. On the other hand, a very large number of cases have occurred in which persons were found "not insane" after a jury trial and were subsequently within a short time proven to be so demonstrably insane that a new trial and commitment to the hospital became immediately necessary. I have personally known of twelve cases of this character, and have no doubt the history of other institutions would furnish a parallel to this, but have not the exact data. So much for the accuracy of the jury trial. These twenty-nine sane persons sent by the juries to the insane asylums, and twelve cases in one institution who ought to have been sent, whom juries failed to send. I doubt whether the records of any State which has other forms of commitment by certificate would show a more glaring record. I am not, however, in favor of abolishing the jury trial. Far from it; let it be placed by the statute securely within reach of any and all persons supposed to be insane or the friends of such who may desire a trial, and the "Bill for an Act to revise the law of commitment of the insane" which is now pending in the Legislature provides freely for the jury trial for all who may ask for it.

The theory of the law as generally expressed or implied in legislation is that the only proper reason for commitment to an institution for the insane is the element of danger to the patient or to others in the fact of insanity, and the law seems not to contemplate the sending of any person to the hospital for insane who is safe to be at large. In this the nature of insanity as a disease, and a curable disease is wholly overlooked, but the enlightenment and the progress of medical science of to-day have shown that insanity is a disease, and is a curable disease, and that the patient is entitled above all things to the benefit of care and treatment in the early stages, and that the element and prospect of cure should be a governing consideration in deciding as to the commitment of an insane patient. It is not perhaps generally known to medical men that insanity, when treated in the early stages, is a highly curable disease. Of 100 patients who receive hospital treatment within three months of the onset of the disease, on an average sixty to seventy-five will recover. If treatment is not given until six months have elapsed the percentage drops to 49 or 50, and if we wait a year it still further goes down to 20 or 25, and any legislation for the commitment of the insane ought to take into account as one important factor in commitment of the insane the cure of the disease as an important object. In this same connection I desire to speak of another feature of importance incorporated in the law now pending. This is a provision for "voluntary commitment" on the patient's own application. It often happens that patients in the incipient stages of insanity fully realize their danger and desire treatment at a time when no jury would find them insane and when a physician could hardly give a certificate of insanity. I have been applied to again and again, as have all officers in charge of large asylums, by patients seeking admission, knowing its importance but unwilling to encounter the trouble, the expense and the exposure of a legal commitment. I have again and again been obliged to decline to receive such patients and seen them brought forcibly to the hospital a few weeks or a few months later, at a time when the insanity had become completely developed, and when the most favorable stage for treatment had passed by never to return.

Finally, in reference to the jury commitment, I would again ask the question whether danger to personal liberty would exist in the law now proposed? It is to be said in the first place that no law will be absolutely perfect in its working. Errors, mistakes, and even wrongs may occur under any possible system, but upon the principle of the greatest good to the greatest number it is, in my opinion, important to do away with this compulsory requirement of the jury com-

mitment now exacted for each and every insane person, however plain the case of insanity, however unwilling the patient and the patient's friends may be to submit to it, however great the injustice it works to the insane by wounding their feelings, fostering and increasing delusive ideas and fancied wrongs, and furthermore, in delaying the commitment to the hospital, rendering oftentimes a case which would otherwise be curable, altogether hopeless, for this is undoubtedly the effect produced yearly in the case of scores of patients whose friends will not subject them to it.

Again, another evil growing out of this law is that patients are sent out of the State in large numbers to be treated elsewhere, and if there is any probability of a wrong being done them such a thing is facilitated by their removal to a distance from their home, while an excuse is furnished for such removal by the oppressive law in operation in this State.

With reference to the possibility of conspiracy to kidnap and defraud sane and innocent persons it is to be said that proceedings of this kind, while they may occur, are not common. They are far more frequently met with in the columns of sensational newspapers than in actual every day life. Almost without exception the cases which lead to complaint and public inquiry are cases not of sane persons who have been deliberately wronged and abused, but of patients who live along the border line between sanity and insanity and with respect to whom there might be an honest difference of opinion. In my experience of over twenty years I have never known of a conspiracy against a sane person, though I have known cases in which persons were unnecessarily sent to the asylum, *i. e.*, mildly insane persons who could be cared for at home, but their family or friends wish to be rid of them, and this is as readily done with a jury as shown by the past.

It is my opinion that if legislation shall be secured providing the jury trial for all who desire it, and in other cases allowing a commission to inquire into the question of insanity at the discretion of the court, that a substantial benefit may be secured. The aforesaid commission to be composed of qualified physicians in regular and active practice who are residents of the county and are chosen by the judge himself on account of their known competency and integrity, who shall make a personal examination of the patient and file with the clerk of the court a report in writing verified by affidavit of the result of their inquiry, together with their conclusions and recommendations. The judge and the said commissioners shall also have power to administer oaths and take sworn testimony. The proposed law also provides that the court may, if not satisfied with the finding of the jury or commission, set the same aside. Further, that the finding of the commission shall be recorded at large in the court records, also that appeals may be allowed to a higher court.

In closing, I may cite the experience of other States that do not have the obligatory jury trial. They are all the best and most enlightened States of our Union. None of the New England, or the Middle, or Southern, or Western States commit as we do by jury trial. In fact, the State of Colorado is the only one beside the State of Illinois which makes this jury trial in all cases obligatory.

Discussion.

The following letter from Judge Thos. B. Moran was read:
Chicago, March 4, 1893.

CHARLES A. BROWN, Esq.,

Dear Sir:—I find it impossible to so arrange the matter as to permit me to be present at the meeting of the Medico-Legal Society this evening. I regret that I cannot be present to listen to the discussion and perhaps add a word or two of my own. I have carefully read the proposed bill and I am satisfied that it would be a great improvement on the

present law with reference to the commitment and care of insane persons. It seems to me that the provisions made for an inquest of insanity are such as insure as fully as it is possible the protection of sane persons and the proper commitment of the insane. The trial by jury now required by law and the required presence of the insane patient in court at the trial are unnecessary in my opinion and tend directly to defeat what should be the real purpose of the law. A commission of physicians acting under the control and direction of the court will reach a more intelligent conclusion than any jury such as is now obtained in practice can possibly reach upon the question of the sanity or insanity of the person on whom the inquest is held. The proposed bill secures the right by jury where it is demanded, or where the court in its discretion sees fit to direct such trial. This, it seems to me is a sufficient safeguard against attempts to incarcerate sane persons upon the finding of a commission without the intervention of a jury. It is probably the fact that persons who are not insane have in some instances been committed to insane asylums through conspiracy of relatives or friends. That may occur as well where there is a trial by jury as where there is a trial by commission and in my opinion there is a great deal of sentimentality indulged in with reference to the commitment of sane persons to insane asylums, with very little basis of fact for its support. Proper treatment of the insane requires early treatment and a power of commitment which may operate quickly and quietly and thus avoid the irritation and confinement in jails or detention hospitals before trial, which are not so prepared as to be proper places for the residence of insane persons.

From the best consideration that I have been able to give the proposed bill, I am heartily in favor of its adoption in this State in place of the provisions of our present statute relating to the commitment and care of the insane.

I send you this hasty line in order that you may, if you see fit, state its substantial contents to the meeting this evening.

Yours very truly,

T. A. MORAN.

Dr. Harriet Alexander:—As chairman of the legislative committee of the reform department of the Woman's Club, we started to draft a bill in regard to the commitment of the insane, when I received a copy of this bill, which seemed to answer all the needs. One thing Dr. Dewey did not speak of which I think is of special interest in this bill, that is the placing of patients in restraint.

My attention was called to this point on a visit to Cook County Asylum to-day. There were six persons in one ward in restraint. I asked the attendant if she had orders for placing them in restraint, she said she had not. I asked the physician in charge, who I think is simply the victim of a bad system; she said there were standing orders to put patients in restraint, and they were always put in restraint when they became violent without reference to the physician in charge. I do not suppose that a clause could be added, in regard to the free administration of sedatives which is allowed, but it seemed about as bad an evil as the free administration of restraint. At our County Asylum it is the practice to give to the night watch a small bottle of sedative mixture which she gives ad libitum whenever the patient becomes troublesome.

Judge Richard S. Tuthill:—It seems to me there is an absolute necessity of change in our law. I have observed, as every one has, in the course of insanity cases that are adjudicated upon, the excitement and trouble that is caused to the patient by his appearance at the trial, and more than that the state of affairs that exists in the detention hospital where all are equally brought and kept, always I think, for several days, and sometimes for several weeks, awaiting a trial. They are restrained where they cannot be treated, and are brought into contact with the violent and most disturbed class of patients, and it seemed to me that it must necessarily result in very great injury to them, and I have no doubt that it is so, and being satisfied of that I cannot think of any better work this Society could engage in than lend

its influence to assist in the passage of this law. We

know that what is everybody's business is nobody's business; Dr. Dewey told us how at the last session of the legislature for the lack of anyone giving it personal attention, a similar bill failed to become a law, and I think we ought to assist as much as we can in securing the passage of this law by the legislature. I therefore move that it is the sense of this Society that this law now before the legislature should be speedily enacted, and that the Secretary of this Society be instructed to communicate this resolution to the legislature or to the committee having the bill in charge, both in the Senate and House of Representatives, and to urge upon the legislature the passage of the law.

Mr. Marshall D. Ewell:—I doubt whether this proposed law would be held constitutional on an appeal to the Supreme Court, as we have a constitutional provision in this State that no man shall be deprived of his liberty except by the judgement of his peers. While I have no doubt that the judgement of those who have studied the bill is in the main correct, at the same time some things about it ought to be changed. This voluntary clause, for instance, providing that any person who may in the early stages of insanity desire treatment and may voluntarily enter the hospital, contains this proviso, that all voluntary patients shall have the right to leave the hospital at any time upon giving three days notice to the superintendent. Suppose one of these voluntary patient's staid there long enough to develop a homicidal tendency, how absurd, how criminal it would be to discharge a patient of that sort; that certainly ought to be left out.

Dr. J. G. Kiernan:—The commitment of the insane is permitted on the certificate of two physicians, in England, a country that is most zealous of personal liberty. New York has a similar law which has been held to be constitutional by the Appellate Court. It does not interfere in the slightest with the right of citizens to a trial by jury. In regard to the clause permitting the release of a voluntary patient on three days notice, any citizen has the right to secure the arrest of a person showing a homicidal tendency, and the three days limit will be found ample to answer that purpose.

Conspiracies have never been shown to exist by what is a fair test, that is a suit for damages for false imprisonment. In the last year I have followed ten such cases where suit for false imprisonment was brought and in every case the defendant won the suit.

Judge Richard S. Tuthill:—This bill does not propose to take from any one the right of jury trial. Jury trials are waived every day. A man can plead guilty in a criminal case and waive a jury trial. This bill gives to every citizen a jury trial if he wants it. In Massachusetts, New York and Pennsylvania, where the best systems of jurisprudence are in operation, and where there is most jealousy of personal liberty, they have this law. I think this bill has been well considered and I have no question as to its constitutionality. Judge Moran, who is a good judge and a good lawyer, has examined it and thinks it is all right, and it is to go before a Legislature composed largely of lawyers, so I do not think that we should hesitate to take some part in this matter.

Dr. H. N. Moyer:—It seems to me from the standpoint of the insane that this is an excellent bill in all particulars, and if the Supreme Court declares that it is unconstitutional, we may have it in operation twenty years before it goes there, and even then there will be only one or two clauses that would go by the board, and we would have the benefit of the main features of the law. But the difficulty will be in getting this bill passed. I almost feel like blushing for American institutions and government by the people. For twelve years back bills have been pending in our Legislature endorsed by doctors and societies like this.

Dr. Richard Dewey in closing the discussion said: There is one thing that perhaps ought to be spoken of. Some legal gentlemen who have been rather opposed to abolishing the present method say, "Why, you have a doctor on the jury," and they intimate that this is just as well as the method contemplated by this bill. I would like to call the attention to the difference between the medical talent usually found on a jury as now brought together for trial of insane cases, and the physicians who would furnish certificates of insanity under this law. A jury is made up of both medical men and laymen from those who happen to be around the court who are doing jury duty, and to whom the small fee it brings is a consideration. There are of course exceptions to this rule, but you do not get a medical man on a jury, ordinarily, who has expert knowledge of insanity or is of average weight as a medical authority, whereas this bill provides that physicians should be selected by the court for their integrity and standing, who are thoroughly qualified and have been in active practice for a length of time, and it is evident that in this way a very much better medical opinion may be obtained.

On motion the resolution presented by Judge Richard S. Tuthill was unanimously adopted.

ARCHIBALD CHURCH, M.D., Sec'y.

American Electro-Therapeutic Association.

Second Annual Meeting, held in New York, October 4, 5 and 6, 1892.

WILLIAM J. MORTON, M.D., PRES.

SECOND DAY, OCTOBER 5—MORNING SESSION.

(Continued from page 396.)

No therapeutic measure to-day offers so sure and complete results in mal-development of uterus and appendages as electricity scientifically and timely applied. Faradization may be depended upon to perfect development of the muscular tissue, and for its stimulating effect on the involuntary fibres of the walls of the blood vessels.

The galvanic current, if properly applied, produces a determination of blood to the parts, thereby affording pabulum for development of tissue and improving the nutrition.

Faradization may also be so altered as to produce a sedative effect on the nervous and muscular tissues. Hence we have in this element, electricity, all the requisites for development, and means by which physiological conditions are almost identically produced and pain relieved.

It accomplishes what rest, diet, massage and drugs cannot. Its benefits are permanent and may be confidently relied upon to produce unfailing results. It is easy of application, giving little or no pain, and without danger. Its future in gynecology, I am satisfied, is great from the standpoint as a potent means of developing feeble organs. Its best results are to be obtained in youthful subjects whose tissues are in a plastic state, and especially not in those in whom a mal-development has existed sufficiently long to produce atrophy.

This treatment to be successful must be frequently applied and extend over a period of months. No one can question the correctness of the position taken in this article as to uterine development who has ever seriously considered the injurious effects of modern forms of female dress, and the mental work required, and the limited amount of exercise taken.

The following cases I quote as corroborating my position:

Miss E., age 14 years and 9 months, on April 25 was committed to my care. She presented the appearance of health so far as flesh, activity and appearance was concerned, she would laugh with little cause to induce the same. She was

very childish both as regards her appearance and actions, her appetite was very good, and she complained of nothing but epileptic attacks recurring every few days and growing "more serious," as her mother described it. Her family history was good; no member ever having had hysteria, epilepsy, rheumatism, scrofula or phthisis, her sisters (four) all older than herself having menstruated at the age of 12 years, and having regular periods throughout.

Her mother gave the history of catamenial periods having occurred at 12 years and being normal throughout; but this girl had never menstruated at all. About the age of 12, she had her first epileptic convulsion, they came on monthly and the period between each attack grew shorter; she had consulted two physicians who I suppose had thoroughly exhausted the therapeutics vaunted as beneficial in epilepsy. I made an examination per rectum and with difficulty found a small infantile uterus and could detect no ovaries. Vaginal examination reveals a uterus with a depth of only one inch, the hair on the pubes was normal. She complained of pain in her bowels at times. I prescribed bromide, bicarb and iodide of potash in heavy doses with no beneficial results, but on the contrary the attacks seemed to increase both in frequency and severity. At her first visit I applied vaginal faradization with external pole over abdomen followed by galvanism. I soon left off the bromide and iodide of potash and gave her only a tonic of iron. Two and three times a week I applied first the faradic current, one pole over the back of the neck and the other to the right and left fornices and intra-uterine, at times using the os electrode. This was usually continued 10 minutes, after which I used the galvanic current, using intra-uterine and vaginal electrode for ten minutes, never going higher than fifteen milliamperes and using the negative pole as the active and inactive over the abdomen. After the first month's treatment this patients' "epileptic fits" began to be less frequent but continued unabated in severity. I neglected to say in giving her symptoms that she was very nervous. This condition of affairs continued unimproved.

The second month witnessed a decline in the severity, and the epileptic fits occurred now only every two weeks, but the attacks of "nervousness" continued.

The result of the third month's treatment witnessed the return of the last attack which was not very severe, but the nervous attacks continued. The end of the fourth month's treatment is recorded as follows: no convulsions for four weeks, breasts enlarging, and looks and acts more like a woman, the ovaries can be detected on each side nearly normal in size, the uterus is at least twice as large as originally in April. "The sound enters more than 1 $\frac{3}{4}$ inches, the uterus looks quite vascular, and while the catamenial periods have not appeared, I confidently expect them soon, the "nervousness" continues, but in a modified form. Sept. 25, completed the end of the fifth month of treatment, the sound enters 2 $\frac{1}{4}$ inches, the uterus appear normal in size, no epileptic convulsions for eight weeks, the uterus still looks quite vascular, the mammae are still developing; she is becoming shy and evidently will soon have menses occur.

Sallie O., age 16 years; in 1890, was referred to me by Dr. C., for the treatment of convulsive attacks of hysteria, occurring monthly, and amenorrhœa. This girl gave a family history free from diatheses, sisters as regular catamenia, and healthy since the age of 11 $\frac{1}{2}$ years. She had persisted in tight lacing and at the age of 13, she had a short and scanty flow, on the month following at the time corresponding to this period, her first attack of hysteria came on, she was unconscious but soon rallied and in a few days was well. No catamenial period. This condition continued until May 1890, about two years after her first attack. I examined the uterus, found the cervix about 3 $\frac{1}{2}$ inches as I

could best judge, and the whole cavity only $1\frac{1}{4}$ inches. The ovaries were scarcely to be felt, being so small, but the hair on pubes was abundant. The mammae were poorly developed, otherwise she was well and bright. I commenced treatment by applying faradization to the right and left fornices and intra-uterine the external electrode over the abdomen. This was continued at each time for fifteen minutes. This was repeated for one month and much to my surprise, though I gave her anti-spasmodics, the hysterical attacks did not recur. The second month I combined the galvanic current with the negative pole active to the interior of the uterus (always succeeding faradization) for the period of ten to fifteen minutes using fifteen milliamperes. This was repeated twice a week. At the end of this month she had an attack of hysteria, due to excitement I am sure, as the third months' as well as the seconds' treatment was to leave off the anti-spasmodics, and the treatment was the same as the second, except near the time I expected the attack of hysteria, then I gave only the galvanic current daily for fifteen minutes, using only about ten milliamperes. This was to result in no return of hysteria, notwithstanding she left off the anti-spasmodics.

The fourth month's treatment showed the mammae enlarging and the sound entered two inches, and the uterus three days previous to catamenia was expected, very vascular. It was then I ordered warm hip baths. Aloes, myrrh, and manganese bin oxide had been ordered ten days previously, and quiet enjoined, and to my delight the catamenial periods came on slightly, but with so much pain as to necessitate the administration of an anodyne, for the whole thirty hours the period was on, and twelve hours previous to its appearance. The fifth month's treatment was much the same as the fourth, save that the applications were not so frequent. But at the end of this month the pain was mild and the flow continued for two days but scant. No hysteria. The sixth month, the application was the same, but only once a week. The catamenia now came on without pain and was free enough as to flow, and its duration was for four days. The seventh month the treatment was given only twice, and that gradually diminished in force and duration. The uterus was now $2\frac{1}{2}$ inches in depth and everything appeared normal, and the patient was discharged as cured and has since had no return of hysteria. She has since married and is now pregnant.

Case 3.—Jennie E., age 16 years, and has had catamenia regular but scant flow and dysmenorrhœa since 13 years of age. Consulted me in June, 1890, for hysterical attacks before and after catamenia; examination revealed small os, small uterus and hyperæsthetic ovaries, and sound entered only to the depth of $1\frac{1}{4}$ inches. The treatment was faradization followed by galvanic current, and after second month flow came free and lasted four days. The pain from dysmenorrhœa ceased after the third month, the sound entered $2\frac{1}{4}$ inches, and the hysteria disappeared.

Case 4., was a woman who had been married for five years. The flow had always been very scant and duration long and painful, and I am satisfied that this condition of affairs was due to mal-development, for the sound entered only $1\frac{1}{2}$ inches, and the uterus was small. She was married at 20; at 25 had never been pregnant. The treatment was faradization until five days prior to expected catamenial period, when I gave her two negative intra-uterine applications lasting five minutes of thirty milliamperes. The flow was slightly improved in quantity. The second month treatment was about the same and flow improved in quantity and pain disappeared.

The third month the uterus was increased in size and the pain less, the duration normal, and after the fourth month the sound entered $2\frac{1}{4}$ inches and everything appeared nor-

mal. The treatment was stopped, and after two months the flow stopped and she consulted me again. I suspicioned pregnancy and advised her to return in two months. She did so and I found her pregnant and afterwards delivered her of a healthy child.

Five, six, seven and eight are cases of dysmenorrhœa occurring in girls ranging from 15 to 20 years of age, in which the dimensions of the uterus was in all cases below normal, and in which drugs had been used with temporary relief. In such instances faradization followed by the negative pole of the galvanic current relieved the patients permanently and restored the dimensions of the uterus.

This much of experience has led me to believe, 1st. that mal-development is more frequent than is supposed. 2nd. that it is responsible for a large per cent. of female diseases. 3d. that a great many reflex symptoms are due to mal-development not generally attributed to this cause. 4th. that faradization followed by galvanic currents is the most reliable means we have of developing the uterus.

Discussion.

Dr. von Raitz said that about seven months ago, a married woman applied to him on account of sterility. There was almost no cervix present, and but very little fundus, and the sound passed in only three-fourths of an inch. She was told that the sterility was due to lack of development of the uterus, and in addition to measures directed towards improving her hygienic surroundings, a strong faradic current was employed. After about four months she conceived, but aborted at about the fifth week. The treatment was resumed, and at present she is in the third month of pregnancy.

Dr. Mosher, of Brooklyn, said that infantile uteri were more common than is generally supposed, and the cause is evident to all who have studied the habits of our young girls at the age of puberty; their dresses are made longer and they are not allowed to exercise as much as formerly. While admitting that electricity will stimulate the growth of the sexual organs, and improve their nutrition, it cannot be denied that the local treatment of these young girls is morally and physically bad, and on this account, she thought this Association should not advocate this treatment except in such serious conditions as epilepsy where other measures will not suffice. Electricity should not be resorted to until the every-day careful treatment by gymnastics has been given a fair trial. Her experience in gymnastic work had given her an excellent opportunity for extensive examination of this subject, and her work had compelled her to examine many young girls by the rectum where it was necessary to note the condition of the pelvic organs before allowing them to begin such a course. She had been surprised at the number of girls having small uteri, and she had been likewise surprised at the growth following upon a course of gymnastics. Such exercises not only increase the size and improve the condition of the pelvic organs, but may even improve malpositions.

Dr. Goelet heartily endorsed the views expressed by the last speaker. If, he said, we find that physical culture is not sufficient, we can employ in conjunction with it, the galvanic current, applied externally, with the negative pole low down on the spine, and the positive pole at the nape of the neck, and repeated two or three times a week. Of course, where such a serious condition as epilepsy is present, the treatment is much more effective if with the negative pole in the uterus, and the indifferent electrode over the lumbar region a moderate current be applied every other day. Each seance should terminate by the application of the application of the faradic current, connecting the same electrode with the negative pole. If this is not sufficient,

then recourse should be had to Apostoli's bi-polar intra-uterine faradization with the current from a coarse wire coil. He had tried dilating the uterus for the relief of epilepsy, and where the menstrual function had become established, the epilepsy was relieved.

Dr. Hall Brown, of Brooklyn, said she wished only to place herself on record along with Dr. Mosher regarding the avoidance of local treatment except in some persons having some specially serious condition, and to express her belief that proper attention to dress and general hygiene would prove sufficient in most cases. Where it was found necessary to use electricity, she would favor only external applications.

Dr. Cannaday, in closing, said he thought all were agreed that local treatment should not be employed until everything else had failed, but the case of epilepsy which he reported, seemed to be sufficiently severe to warrant the treatment of which he had adopted with a view to establishing the menses, and the cases 2 and 3 had been treated by pessaries and applications to os; 5, 6, 7 and 8 resisted everything, even the current as suggested by Dr. Goelet.

The president announced the appointment of the following committees:

On Static Machines.—Drs. Kellogg, Cleaves, and Massey. On motion Dr. Morton was made chairman of this committee.

On Constant Current Generators and Controllers.—Drs. Herdman, Peterson, and Newman.

On Electrodes.—Drs. Rockwell, Nunn and Dickson.

SECOND DAY—EVENING SESSION.

DR. W. J. MORTON, PRESIDENT, IN THE CHAIR.

EXECUTIVE SESSION.

The meeting was called to order at 9:30 P.M.

Report of the Secretary: The President stated that there was no formal report—only the transference of the office to Dr. Newman.

Treasurer's Report: Dr. Nunn reported that he had received no money, and had paid out none, for the past year, and had no account except "balance received." On motion, the out-going Secretary was requested to make a report to the present Treasurer of the money which he had handled.

On motion, the election of officers was next considered.

Dr. A. H. Goelet was nominated for President.

Dr. W. F. Hutchinson was nominated for first Vice-President.

Dr. W. J. Herdman was nominated for second Vice-President.

On motion, the Secretary was instructed in each case to cast a ballot for the election of these officers.

After some discussion as to the advisability of having a permanent secretary, the election of officers was continued, and in the same manner, Dr. Margaret Cleaves was elected Secretary, and Dr. W. J. Nunn Treasurer.

Executive Council: On motion, the following were ballotted for "in block," and were elected: Drs. Morton, Newman, Massey, Dickson and Kellogg.

After some discussion, Philadelphia was selected as the next place of meeting, and it was decided to hold the meeting next September, on the Tuesday immediately following the adjournment of the Pan-American Congress. On motion, the Secretary was instructed to notify the Secretary of this Congress of this arrangement.

After discussion, it was decided to vote upon an amendment of Article III of the Constitution so as to read: Members of this Association shall consist of ordinary and honorary Fellows, who shall be either practitioners of medicine in good standing, or electrical experts.

Committee of Arrangements for next year: The President appointed Drs. Massey, Bigelow and Grier to serve on this committee.

"The Phonograph and Micro-Phonograph," was the subject of a lecture by J. Mount Bleyer, of New York. After demonstrating the action of these instruments, the meeting adjourned. The remainder of the evening was devoted to a reception and collation given by the resident members of New York to the members of the Association, their ladies and invited guests.

THIRD DAY, OCTOBER 6, 1892—MORNING SESSION.

DR. A. H. GOELET, VICE-PRESIDENT, IN THE CHAIR.

EXECUTIVE SESSION.

On motion of Dr. Hutchinson, authority was given the Secretary to hire an assistant, if this were deemed necessary.

Dr. Nunn moved that the executive committee be instructed to publish the proceedings of the Association from the initial meeting. Carried.

Dr. Hutchinson stated that the *New England Medical Monthly* would be pleased to publish the entire proceedings free, and would furnish 1,000 copies in cloth covers at 75 cents each.

On motion of Dr. Massey, a vote of thanks was given the resident members in New York for their reception. Votes of thanks were also given to the New York Academy of Medicine, the Electric Club, the electrical experts, and the Telephone Company, and the Secretary was instructed to send appropriate resolutions to those mentioned.

The business session was then adjourned until evening.

IN MEMORIAM—DR. GILMAN KIMBALL.

By Ephraim Cutter, M.D., LL.D., of New York. Read in his absence by John A. Cutter, M.D.

Prelude.—The remarkable life of this great surgeon deserves notice by this society, for what he did in relation to galvanism of uterine fibroids. Had he been like some distinguished surgeons, who have publicly condemned this procedure and thrown contumely on its operators, present history would not have existed. While he was at least the peer of the above gentlemen, he had largeness and comprehensiveness of view enough to see that there are more ways of doing things than one, and was willing to try other methods where surgery had failed so often that he said he was sick and tired of having laparotomy cases of uterine fibroids die.

Had the writer, ignorant, careless and blundering, (as he was thought) applied to the above gentlemen in place of Dr. Kimball, to go in with him in the application of galvanism to uterine fibroids, it is more than probable that some of the cases operated on since 1871 and cured would not now be alive.

The lesson of this unusually long professional life teaches that in condescending to men of low estate, and considering that no one specialty covers the whole ground—is courageous and bold—and that one should be inspired with an idea to cure disease and relieve sufferers, if not in one's own way, by some one else's.

In 1849 Dr. Kimball first made my acquaintance while I was a sophomore at Yale by performing an exploratory laparotomy for a uterine fibroid, as consultant with my father, the late Dr. Benjamin Cutter, of Woburn, Mass. The patient died. I thought then and think now that there was present a trio of brave people. Here was an operation which has only lately been divested of its terrors, done forty-three years ago. Dr. Kimball was certainly no coward. Dr. Benjamin Cutter who sustained him, had in 1846 removed a movable cartilage from the knee joint of a man thirty years old, without ether. Operation followed by

complete cure. Mary Clinton, a nurse, was a courageous patient to submit and calmly die! At this time Dr. Kimball was forty-four years old. He lived to nearly double that age, all the while save the last five years or so, doing ovariectomies in spite of calumnious opposition, bitter reproach and unsparing condemnation endured from those who had the reputation of being the foremost surgeons and physicians of their time! Of course he was not the originator, but in the face of such united and obstinate resistance he deserves to be named with McDowell, of Kentucky, and Dr. W. Atlee, of Philadelphia, who was a contemporary with Dr. Kimball and startled the medical world with his success in ovariectomy. He had more cases than Dr. K. who naturally took Dr. Atlee's place after his death.

About 1869 Dr. Kimball proposed to me a partnership of office, but it was not till 1871 that this was brought about. The writer had been applied to by Dr. W. S. Brown, of Stoneham, to try galvanism on a uterine fibroid in a patient of his. Elsewhere Dr. Brown has related the history.¹ The first operation was Aug. 21, 1871, at which Dr. Kimball was not present, at the next operation, Aug. 31, Dr. K. was present and applied the needles at my request.

As a man Dr. Kimball was of medium size, high forehead, piercing eyes, lean, lithe and wiry. His general attitude was one of professional thought. Sedate to most people, he was when you entered into his confidence, very talkative and communicative. He delighted to hear of new ideas of all kinds. He had a large fund of entertaining reminiscences, specially of medical men. He never alluded to the opposition he encountered, no matter how much he felt on subject. His manners were kind to his patients and he was remarkably expeditious in his diagnosis. His habits were not convivial. He did not use tobacco nor profane language. His character for business honesty was very high. He was wealthy, but all his wealth did not come through his profession. He had free use of capital not his own, whereby he took monetary advantage. The sides of his character that were turned towards me were mostly good ones. He was fond of music and performed on the cello sometimes in public. He was influentially connected with the large manufacturing corporations of Lowell, as stockholder and surgeon. He came of a long lived family. He had seven or eight sisters who idolized him, as he was their only brother.

He was very calm under domestic affliction. One day I noticed that he went home early. Before he went he said "I must go as my wife died this morning." This was the first I knew of her illness. He was very kind to me when I was laid by for 100 days with a fractured patella; none could exceed him in tenderness and interested advice. He was a keen observer and his judgments of people at first sight were generally correct. When about five or six years ago he was laid up with an attack of hemiplegia and I visited him for sympathy, he was very profuse in his thanks and said he thoroughly appreciated it. He disliked the pen, rarely wrote letters even, but what he did write was good Saxon English. I used to try to get him to write out the history of his experience in ovariectomy, but he was averse to doing this himself. On the other hand his advice to me was, to publish, publish as long as I had anything to publish, and if I have done so, it is partly by the advice he gave.

He was fond of society, that is, medical. The last time I saw him was at the 1891 annual dinner of the Massachusetts Medical Society, when he was 86 years old. He was also an honored attendant on the Ninth International Medical Congress. I must confess I was much pleased to see him hon-

ored this way. It awakened feelings of wonder that a human being could work so long. He was four years older than Dr. H. I. Bowditch, but his mind was much clearer to the last. How few medical men have such longevity, and yet they were both workers.

As to electricity, from what I gathered in conversation with another old Massachusetts Medical Society Fellow who joined in 1837 and who had devoted his life to faradism with a success from his own description that far surpassed anything I know of, I found that Dr. Kimball had not put much faith in electro-therapeutics. The two worked in Lowell. It was the more strange then that he went into the work he did. I laid the matter fully before him not keeping back all the discouragements I had received from the best specialists I could consult. They were united in saying it was useless to try galvanism on uterine fibroids. I asked if they had tried and they said they had not, and thus a clear field for us to go ahead was open. Opinions about things they had not tried were not worth much. I told Dr. Kimball that I thought I would like to see if the galvanic current would not arrest the development. It was merely an experiment; but one I thought should be tried. There was much said in the same direction. I told him I had the apparatus, and he said he would take hold. After the above trial he made great complaint of the needles. As he was going to New York I asked him to get a proper set of needles for such work. He did so and after several months we tried them at Lowell. The battery was all right but the needles failed to penetrate through the walls of the fibroid, which was situated in the uterus. A sponge was placed on the pubis to complete the circuit. At this stage Dr. Kimball was much vexed and said he would not have anything to do with the operation unless I invented some needles that would penetrate a bullock's testicle. Of course if they could do this they would penetrate anything less solid. I set my wits to work as this was the situation: Dr. Kimball had probably seen more cases of uterine fibroids than any other surgeon in New England, as he had found three uterine fibroids to one ovarian tumor, he was constantly seeing them and this opportunity of his great aid and influence was to me too important to be lost. So I produced a gold plated cork screw electrode. We tried it and it did not work. Next I modified an ordinary surgeon's director into a needle and this has never failed in any emergency. It has been condemned by some but Dr. Kimball never condemned it, nor can I so long as it works. I am quite sure that had not this needle been produced no progress would have been made. We soon got tired of one needle in the vagina and a sponge over the pubes. Then it was resolved to put both needles through the abdominal walls into the substance of the fibroid, because this was attacking the diseased part solely, and where it was needed. When operating together I looked after the battery and the current, and he the needles. It was a bold procedure to plunge the needles through the peritoneum but it was done and no bad results followed for some time. When the needles were withdrawn pressure was made close to the needles, thus holding the tissues together. With these precautions and these common sense suggestions, Dr. Kimball and I found this mode of operating feasible.

The Natural History of this Procedure without Ether.—One day I said I wished we could have a patient try the operation without ether and then we could see if the galvanic current produced any systemic effects. He took up the idea at once and soon said he had a case. The operation was done without anæsthesia. I thought the patient a very brave woman. She began at once to show signs of intense suffering, though she said nothing nor groaned. Even when we said we would stop and give ether she refused.

¹ Phila. Med. and Surgical Reporter, Feb. 8, 1873.

The following symptoms were noted among others: Pulse ran up to 130 and 140; respiration increased. Body and limbs writhing in agony. Hippocratic countenance, face pale, nose pinched, etc. She bore with it for five minutes when we agreed that it was evident enough that the galvanic current, which we could bear on our tongues, had a powerful systemic influence which carried out would kill. We had no milliampère metre but afterwards a like battery with both needles through the abdominal walls showed in an antecalated ampère meter 500 milliampères.

Dr. Kimball was a constant friend.—At this time he was advised that he had better associate with some one who knew more what he was about, but Dr. Kimball never went back on his associate save in the matter of priority. This was settled outside of us both, by Dr. W. S. Brown in his published report of the first unsuccessful case. Dr. Kimball's memory failed him, nor would I argue with him as a matter of respect to one who had done so nobly the difficult pioneer work that was accomplished through his influence and ability and steadfastness and true courage. The work is better for his life. He paved the way for his followers. Men may rise up and belittle the work done by him before they were born, but nobody can wipe out the fact of his accomplishments by pure pluck, determination, perseverance and moral courage. Dr. Kimball was not a perfect man. Where is one? He once said, when I told him about the 100 or more cases of uterine fibroids removed by ergotine injections by Dr. Byford, "I don't believe a word of it." This settled it for him, but belief or disbelief in no way alter facts. He would not believe I cured cases of uterine fibroids by food. Nor think as I do that they are diseases of nutrition caused by feeding, nor in my cures of consumption by feeding. I do not blame him, but I do praise him here for his honorable contribution to galvanism of uterine fibroids, and with him as an example, I call Mr. Tait and Dr. Joseph Price (since I understand these gentlemen have over their names come out as antagonists to electro-therapeutic procedures I have a right to use their names) to cultivate the beautifully broad spirit of our deceased father in surgery, and condescend to help others in other ways in place of hindering. If the whole profession could learn this lesson from Dr. Kimball it would be an imperishable monument better than bronze.

120 Broadway, New York.

Remarks.

Dr. Massey said that all present must have listened with pleasure to this memorial, which was the more pleasant as it showed that we are indebted to an American surgeon for the first operative treatment of fibroid tumors, as we are for so many gynecological procedures; but while calling attention to the historical position of both Dr. Gilman Kimball and Dr. Ephraim Cutter, he did not wish to be understood as desiring to detract at all from the credit due Apostoli for his development of these ideas. It would be interesting to all if more details were given concerning the battery which was used for this treatment.

Dr. J. A. Cutter replied that he had operated upon the case in which the needles were inserted into the tumor, and the current strength measured 500 milliampères, with a single battery cell of $1\frac{1}{2}$ volt.

Dr. Massey said that it would be inappropriate to bring out this matter in connection with a memorial, but it was a subject of much interest to the Association. He would certainly take exception to the possibility of passing 500 milliampères through a material thickness of fibrous tissue from a battery of two volts, for it is an absolute physical impossibility, unless the needles were so close together that a complete solution of the tumor took place between them. In

experiments on fibroid tumors, six hours after their removal, he had found that three-quarters of an inch of tumor of the average consistency developed a resistance of from 100 to 500 ohms.

Dr. Cutter said that he had described only what he had seen. There was probably a great difference between a tumor in the living body, and after removal. The tumor had probably been carried five or six years, but one week after the operation, although previously smooth and hard, it was found to be broken up into a number of segments.

SOME RECENT CONCLUSIONS IN THE TREATMENT OF FIBROID TUMORS.

By G. Betton Massey, M.D., Philadelphia.

A review of the question of the mode of action of electric energy in causing the regression of fibroid tumors is always valuable in pointing out the most efficient methods of using the agent, as well as helping us to define its limitations, explain its shortcomings, and comprehend the mode in which the various degrees of regression and absorption are brought about. During the past year I have had an excellent opportunity to study the effect of simple contractions of a myomatous growth produced by passing strong galvanic and faradic currents through it by means of large electrodes placed externally on the skin on opposite sides of the upper extension of the tumor. The patient was a single lady of thirty-three years, in whom the tumor had been known to be present for ten years. It was somewhat irregular in shape, of a soft, mushy consistence, and as large as a pregnant uterus at seven months, almost filling the abdomen. For over a year there had been a constant loss of blood. The excessively mushy consistence of the growth contra-indicated the ordinary Apostoli treatment in my opinion, and after declining to accept the case for that method, I decided to try the effect of strong currents externally applied. The pads, about eight inches in diameter, were placed first on the tumor and back, and then on each side of the tumor at each treatment, as much as 150 to 200 milliampères being turned on and reversed several times with the controller. This was followed by similarly applied primary faradic currents. A good effect was soon shown in the control of the wasting, the monthly periods being reduced to nearly normal proportions. The effect upon the size is best shown by the following series of measurements of the abdominal circumference at the greatest diameter of the tumor, taken before and after each treatment:

Feb. 26.	Circum. before treatment, 35 inches; after treatment, 34 $\frac{1}{4}$ inches
March 1.	" " " " 34 $\frac{3}{4}$ " " " 34 $\frac{1}{2}$ "
" 5.	" " " " 34 $\frac{1}{2}$ " " " 34 $\frac{1}{4}$ "
" 11.	" " " " 34 $\frac{1}{2}$ " " " 34 "
" 14.	" " " " 34 " " " 33 $\frac{7}{8}$ "
" 23.	" " " " 34 " " " 33 $\frac{1}{2}$ "
" 30.	" " " " 34 " " " 33 $\frac{1}{2}$ "
April 8.	" " " " 33 $\frac{1}{2}$ " " " 33 $\frac{1}{4}$ "
" 23.	" " " " 33 $\frac{1}{2}$ " " " 33 "
May 11.	" " " " 32 $\frac{5}{8}$ " " " 32 $\frac{1}{2}$ "
" 12.	" " " " 32 $\frac{5}{8}$ " " " 32 $\frac{1}{2}$ "

It will be seen by this table that each treatment produced a shrinkage of from one-quarter to three-quarters of an inch, which was retained in part for a few days until the next application. At the end of two and a half months two and a half inches had been gained. The contraction and hardening of the tumor under the effect of the current was most marked, the mushy feeling giving way to a knotty condition. The happy patient was now sent home for a few weeks, but on her return we were disappointed to find that the growth had relaxed again and now measured thirty-four and one-half inches, but a half inch in circumference less than at first. Further treatment was abandoned by me as not productive of sufficient results.

The lesson taught by this case is clearly that lasting results in these soft myomas require more than an interpolary action, while it is also made clear that myomatous

tissues may be made to contract at once by these currents, doubtless in the same way that any other muscular tissue is contracted by electricity.

More valuable data may be gained from a study of the treatment used with the seven tumors that I have had the pleasure of seeing disappear completely by absorption under electricity. The first of these was an intramural growth filling the pelvis, and with a projection on the left reaching to the crest of the ilium. The consistence was firm, and there had been considerable suffering from pressure. The treatment was intra-uterine, negative applications of from fifty to 150 milliamperes. After the cessation of treatment the uterus had shrunken to the normal size, leaving indurations of the ligaments only. In the second case the tumor was larger, extending considerably above the brim of the pelvis. The mode of treatment was the same, but the current strength did not exceed 110 ma., and the size of the uterus and condition of the pelvis were both normal six months after the cessation of the treatment. The third tumor that was completely absorbed was a pelvic interstitial growth of six years' standing, with hemorrhages. The treatment was again intra-uterine but positive, and the highest strength was but sixty ma. The fourth and fifth were both pelvic, interstitial, hemorrhagic growths, the largest, however, extending somewhat above the brim. Here again the treatment was by the intra-uterine method and positive, the highest current in one being sixty and in the other 100 ma. The sixth tumor to completely disappear is the only one that has so far been entirely absorbed after electro-puncture. It was a sessile, subperitoneal growth projecting into Douglas' pouch and extending upwards into the abdomen nearly to the umbilicus, and interfered much by pressure with the functions of the bladder. The punctures were negative and vaginal, buried over an inch in depth, and varied in strength from 100 to 150 ma. The seventh and most recent disappearance by absorption was in all respects the most remarkable, for the intramural tumor, fully the size of an adult head and extending above the navel, was made to disappear by intra-uterine applications under 125 ma. during a prolonged treatment. A portion of the treatment of this case was done by Dr. Whitcomb, of Greenwich, N. Y.

Of the seven cases of complete absorption, therefore, six were treated by the intra-uterine method and one by pelvic electro-puncture. Without considering the methods of treatment used in the large number of cases of symptomatic cure and reduction in my own practice and those of others, it would seem that the most effective mode of treatment necessitates the concentration of currents, not necessarily of great strength, in the immediate vicinity of the trophic and vascular supply of the tumor, rather than the mere passage of strong currents through them. It is apparently a case of cutting off or demoralizing the trophic paths or headquarters of the neoplasm within the uterine stroma itself or at its hilum, and when we can accomplish this best our work in these growths will be most quickly effective.

212 S. Fifteenth St., Philadelphia.

Discussion.

Dr. Kellogg said the faradic current is capable of markedly affecting uterine tissue, yet he had never seen it permanently arrest the growth of a neoplasm. In order to decidedly arrest such a growth, he had found it necessary to modify its nutrition by cutting off its trophic and vascular supplies, and this statement was founded on a personal experience with one hundred and fifty cases of fibroid tumors. The electrolytic current acts most effectively by destroying the blood vessels which feed the growth. On a

large fibroid on one occasion, he had used a current of 350 milliamperes, but it was followed by a severe phlebitis of both limbs, and even the patient's life was endangered. About one month later, he was surprised to find that the tumor was only half its former size, and at present, it has nearly disappeared, and the patient is in excellent health. This marked retrograde process he attributed to the plugging up of the blood vessels by the phlebitis, and the consequent interference with the nutrition of the growth. He had noticed since then that those patients who suffer some pain in the limbs after an application, and they not infrequently do, are the ones who make the most rapid progress. The probable reason why the removal of the uterine appendages sometimes check the growth of such tumors, is that the ligation of the vessels of the broad ligament cuts off the nutrition of the neoplasm.

Dr. Hutchinson said that about fifteen years ago, he began the treatment of fibroids of the uterus with a current of not more than three to five milliamperes, distributed through six fine needles, driven through the abdominal walls into the tumor. There were daily seances of fifteen minutes each. The whole treatment was painless, but was very slow. Thus, an intramural fibroid the size of a foetal head required seven months of treatment to reduce it to the size of an orange, and then, the patient discontinued treatment; but there had been no return of the trouble. Apostoli had refused to try this method on the ground that it was too slow. The speaker said that the first time he ever saw a fibroid tumor operated upon, the operation was performed by Dr. Kimball, assisted by Dr. Benjamin Cutter. The case was one in which he had refused to operate. Two needles, eight inches, and three-fourths of an inch in diameter, shaped like bayonet, were driven into the tumor. The patient died apparently of peritonitis, and the tumor did not seem to have been affected at all by the treatment. This case emphasized the wisdom of using fine needles and low pressure currents, with daily applications of about eight minutes. In one patient, fifty-two years old, whom he treated at the Rhode Island Hospital for seven months, the entire mass was absorbed, and the patient dying the following year of pneumonia, he was allowed to make a post-mortem examination. He found scars through the peritoneum, and several hundred needle marks on the uterus, but there were no evidences of peritonitis, or other complications having existed. She had passed the menopause since the last treatment. His method produced the same amount of absorption as that with the stronger currents, and it was painless and harmless. No antiseptic precautions were observed, but care was taken to sterilize the needles by passing them through a flame. The polarity was reversed each day. The indifferent pole was a pad, six or eight inches square placed on the back. Insulated needles were not necessary with such mild currents, and they were much more difficult to pass through the skin. His theory was that the current stimulated the lymphatics to more rapid absorption.

Dr. Kellogg said that the most rapid recoveries are those who are near the menopause; electricity seems to hasten absorption. He said that he had punctured the left ventricle of the heart without doing harm. This showed the harmlessness of such punctures.

Dr. Herman remarked that the needles employed by Hutchinson were so fine that it was possible that they might pass between the fibres of the peritoneum, which is quite an open mesh, and his results show the safety and convenience of the method.

Dr. Gunning had been much interested in the treatment, but had had no experience bearing upon it.

(To be continued.)

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SATURDAY, APRIL 8, 1893.

THE CHANGES IN NERVE CELLS DUE TO FUNCTIONAL ACTIVITY.

The *Journal of Morphology*, Vol. vii, No. 2, contains a valuable original study of the microscopic changes in nerve cells due to functional activity by C. F. HODGE, PH.D., based upon a number of ingenious experiments upon frogs and cats and upon observations on rested and fatigued birds, bees, or chased foxes, and on the spinal cord of a hydrophobia patient. The work appears to have been carefully and conscientiously done: the technique employed is quite faultless; many of the numerous measurements were corroborated by independent observers and, on the whole, there is no single serious criticism of this research to be made. Throughout the whole all observations have been directed solely towards determining the structural changes that occur in nerve cells after periods of activity. Experiments with electrical stimulation of the afferent nerves of spinal root ganglia were conducted on frogs, dogs and cats; the results were "controlled" by allowing the fellow ganglia on the opposite side to remain at rest; at the end of a certain length of time both the stimulated and quiet ganglia were excised, carried through the very same preparatory fixing and hardening procedures and finally they were microtomed and the sections from both were placed side by side in the same microscopic field. Careful study and measurements of all parts of the cells in the sets of specimens thus prepared, enabled the author to summarize his results in a series of interesting conclusions. By suitable variation in the length of time between the artificial stimulation and the killing of the animals and then preparing sets of specimens, as before it was possible to show that recovery from the changes induced by the stimulation occurred slowly—it required about eighteen to twenty-four hours for the ganglion cells in kittens to regain their appear-

ance in rest after five hours electrical stimulation of their afferent nerves. To determine definitely whether the changes induced by artificial electrical stimulations were physiological or pathological, *i. e.*, whether similar changes occur in the normal activity of nerve cells or not, a number of observations were made on sparrows, swallows, honey bees and carrier pigeons after periods of rest and after periods of normal activity. The animals were instantly killed, the parts examined were removed on the spot and placed in suitable fixing agents; in all instances where it was possible, tissue from an animal in a condition of normal fatigue was compared with tissue from one supposed to have enjoyed a night's rest. It will be evident at once that swallows and the "busy bee" would be very suitable for such observations on account of their regular habits in regard to work and to rest. It was found that the changes observed in the nerve cells from animals in a condition of more or less physiological fatigue corresponded quite accurately with those described in the ganglion cells after experimental electrical stimulation.

Some of Dr. HODGE's conclusions are: Metabolic changes in nerve cells are as easy to demonstrate with the microscope, as similar processes in gland cell; the principal changes thus far observed are: For spinal ganglion cells of frog, cat, dog, under electrical stimulation; for spinal ganglion and brain cells of English sparrow, pigeon, swallow, and for brain cells of honey bee under normal fatigue:—*a.* Nucleus; decrease in size; change from smooth and rounded to a jagged and irregular outline; loss of open reticulate appearance with darker stain. *b.* Cell protoplasm; slight shrinkage, vacuolation in spinal ganglia; considerable shrinkage with enlargement of pericellular lymph space for cells of cerebrum and cerebellum; lessened power to stain or to reduce osmic acid. *c.* Cell capsule, when present: decrease in size of nuclei. *d.* Five hours stimulation of nerve cells requires about twenty-four hours' rest in order that the process of recovery may be completed. The appearances noted in the spinal cord of a hydrophobia patient were similar to those found in the animals, but no conclusions could be reached from one specimen of this kind.

Dr. HODGE's researches appear to have carried our knowledge a step farther into the working of the nerve cell and the results are certainly of very great interest not only to the morphologist and physiologist but also to the physician and pathologist. Reproductive tissue, glands and muscles have long been known to show marked structural changes connected with functional activity, but it was long thought that similar changes could not be demonstrated in nerve cells because they did not produce a material secretion or do mechanical work. It will

be recollected that Daszkiewicz, in 1889, attempted to show by experiments on frogs that activity in the central nervous system is accompanied by changes recognizable with the microscope, but his results were not accepted as conclusive; while Dr. Hodge's work certainly bears the stamp of reliability, and the beginning thus made in this field of nerve cell changes, whose study is so fascinating because of the association with the nerve cells of the higher activities of life, will undoubtedly lead to many valuable observations in various conditions of health and of disease.

ETIOLOGY OF THE VARIOUS DEFORMITIES OF HIP-JOINT DISEASE.

In the transactions of the American Orthopedic Association, vol. v., a new theory for the causation of the deformities of hip disease is advanced by Dr. A. M. PHELPS, of New York. Heretofore it has been held that the deformities of flexion, abduction and adduction were caused either by the limit assuming the position of greatest comfort, or that flexion and adduction at the commencement of the disease were due to the joint capsule being distended with fluid, and later when the capsule ruptured, the limb passed into adduction and greater flexion because the adductors and flexors were stronger than the abductors and extensors. Neither theory has been satisfactory.

From abundant clinical data Dr. PHELPS found: 1. That abduction always preceded flexion, or was attended by it, in the first stage; 2. That abduction and outward rotation are always present in the second stage, and flexion nearly always present, but absent in a few cases; and 3. That to have the limb flexed beyond forty degrees, and frequently at a much lesser degree (twenty degrees), it quite rapidly passed to the deformity of adduction, inward rotation and flexion, whether the capsule was distended with fluid or not.

Assuming the work of the gluteus maximus operating in a given triangle with two pounds and a half weight to be fifty pounds, other muscles operating in different triangles of different weights can be accurately estimated as to their comparative strength. Following this rule it was found that the glutei muscles were capable of one hundred and thirty-one pounds, whereas the adductors were only capable of one hundred and sixteen pounds, proving that the abductor group was much stronger than the adductor in the subject examined. From this it is argued.

First, that in the first stage, the limb is slightly abducted, rotated out, and flexed by voluntary effort on the part of the patient to relieve tension of the capsule and Y-ligament. Second, that this deformity increases, constituting the second stage, because spasm of the muscles about the hip joint is present,

and the great glutei, outward rotators, tensor vaginæ femoris, and flexors have the advantage of leverage.

Third, that, as a rule, limbs assumed the deformity of the third stage only after flexion to twenty-five degrees has taken place, because after the limb has passed to that number of degrees of flexion, the abductors to a very great extent become internal rotators: the external rotators almost totally lose their power as external rotators, and become abductors (with the exception of the quadratus femoris and obturator externus), and the tensor vaginæ femoris becomes a powerful inward rotator. Resistance or antagonism to the powerful abductors and flexors of the thigh being modified or annulled by flexion, the limb must pass to the deformity of the third stage, namely, adduction, flexion and inward rotation.

And fourth, some cases in the third stage continue the deformity of the second stage, because partial or complete dislocation of the head of the femur in an upward and forward direction.

THE DIAGNOSTIC VALUE OF CYLINDROIDS IN THE URINE.

Many standard text-books do not contain any statements whatsoever relative to the so-called cylindroids in the urine which every careful observer meets with very frequently in his routine urinary examinations. The recent article by MAUGES on cylindroids in the urine (*New York Medical Journal*, February 18, 1893) is consequently a timely contribution, presenting as it does in full all the important facts concerning this somewhat neglected element in the urinary sediment. Cylindroids were first described by THOMAS in 1870, and he gave them this name because they greatly resembled true casts together with which they frequently occurred. They are delicate, ribbon-like forms, with very faint outlines, quite refractile, of almost the same diameter as true cylinders; they are usually very long, present frequent bends and twists, as well as lateral indentations; they also occasionally have narrow, elongated, branching extremities. Sometimes they have been found in the interior of genuine, hyaline casts, and then again ordinary casts may terminate in long, characteristic cylindroids.

Considerable discussion has prevailed concerning the nature and the mode and place of formation of cylindroids; it appears to be quite definitely settled, however, that the true cylindroids originate in the kidney, while the so-called false forms may be derived from the genito-urinary tract below the kidney. That cylindroids may originate in the kidney is positively demonstrated by TÖRÖK and POLLAK, who found them in the uriniferous tubules in sections from the kidneys of the common forms of Bright's disease, and also after various experimental renal lesions. The occurrence of casts

enclosing or terminating in cylindroids would also point to their renal origin in such instances. True cylindroids dissolve on addition of acetic acid, while the extra-renal or false forms remain unchanged. False cylindroids are readily found in the secretions of the prostatic, Cowper's and Littre's glands, as well as in those from the mucous membrane of the bladder, vagina and uterus, and these fluids easily become mixed with the urine. The false cylindroids consist simply of bands of mucus precipitated in the excretory ducts of the various glands above referred to by the acid urine. Pseudo-cylindroids will be found in great abundance in the urine of patients with gonorrhœa, often after coitus, or after a hard passage of scybalous masses when the prostate has been compressed and its secretion forced out.

True, or renal cylindroids occur quite frequently; they are found in the various forms of nephritis, in renal congestion, in the acute infective diseases, in catarrhal jaundice, in persons with gouty manifestations whose urine is hyper-acid and deposits crystals of uric acid and oxalate of lime. JAKSCH and others have also found them in healthy individuals. With reference to the mode of formation of true or renal cylindroids, the view that they are formed by the coagulation of some form of albuminous transudate into the tubules is the most reasonable. They do not react like mucus with acetic acid, and the kidney does not secrete any mucus; hence the idea that they are precipitated renal mucus has to be entirely abandoned.

What practical significance is to be attached to cylindroids? Pseudo-cylindroids are of significance only in so far as they have to be differentiated from the true or renal forms; *per se*, pseudo-cylindroids have no importance. Some authors regard cylindroids as indicative of a so-called catarrhal nephritis, in the existence of which they still believe, in spite of the fact that the renal epithelium has not been shown to be able to secrete mucus, and in spite of the second fact that true renal cylindroids do not consist of mucus. Generally speaking, it may be gathered from the opinions of such men as LEUBE, TYSON, ROSENSTEIN, MAUGES, and others, opinions which are, in some instances, quite contradictory, that the undoubted presence of renal cylindroids in urine has about as much significance as the presence of hyaline casts.

On account of the difficulty of readily differentiating between true and false cylindroids, the diagnostic value of the true variety is, of course, considerably diminished, and to base a diagnosis of nephritis upon the presence of cylindroids alone is not warranted, and the final conclusion that cylindroids alone have no positive, diagnostic value appears quite fair—first, because they occur in such a variety of conditions, including good health; and secondly,

because, after all, the practical differentiation between true and false cylindroids is quite difficult and laborious.

ADAMKIEWICZ ON THE NATURE AND TREATMENT OF CANCER.

A communication on the nature and treatment of carcinoma assumes especial importance at this time, because the profound attention of investigators everywhere is being devoted to this subject. With the growing conviction of the infectious and parasitic nature of cancer, and the many researches towards the discovery of the specific parasite, it is but natural that the question of treatment should have been thrust in the background. Further, with the heated and apparently endless controversies waging about the sporozoan cancer parasite, it is a relief to note a work in which the questions at issue are approached from another standpoint. Such a work is the recently issued monograph of PROFESSOR ADAMKIEWICZ (*Untersuchung Ueber Den Krebs Und Das Princip Seiner Behandlung*. Wien. und Leipzig, 1893, pp. xii, 134), which represents the results of several years' research. The cancer problems are studied from the experimental and clinical standpoints, and the author carries the work to the extent of suggesting a remedy for this dreadful malady.

At the outset, we are met with the statement that carcinoma is an infectious disease, closely allied to syphilis in its characteristics—in both diseases we have the primary seat of infection, and the secondary foci. A specific microbe has not been demonstrated with certainty in either of these affections, still we do not doubt the infectious nature of syphilis, and therefore, since carcinoma has so many points of similarity, we must also assign it to the class of infective diseases. The inadequacy of CONHEIM's hypothesis to explain the origin of carcinoma is clearly set forth. In considering the parasite of cancer, ADAMKIEWICZ takes the position of VIRCHOW, BAUMGARTEN, HAUSER, KLEBS, RIBBERT, NOEGGERATH, and those authorities who do not recognize the protozoan parasites of WICKHAM, MALASSEZ, SJÖBRING, RUSSELL, STEINHAUS, PODWYSZOZKI and SAWTSCHEHKO; for he regards the "sporozoa" of these investigators as the products of degenerated or metamorphosed cytoplasm, and as altered nuclei. Similarly, his studies of bacteria in carcinoma were negative; that is, no specific microbe could be discovered in this neoplasm.

The interest and value of the work of ADAMKIEWICZ lies in his experimental studies of carcinoma implantations, and particularly in the implantations in the brain. The subjects of these experiments were rabbits, and they were inoculated with small pieces of fresh, living carcinoma tissue, introduced into the brain substance. From the aseptic nature of these

operations, and by culture tests, the absence of bacteria in the inoculation material was assured. In all cases in which true carcinomatous tissue was planted into the brain, the inoculated animal succumbed, usually dying within a few hours, never living more than two or three days. The phenomena preceding death were those of extreme irritation of the nervous centers—impeded respiration, incoördination, spasms, convulsions, and paralysis. In a series of control experiments it was ascertained that fresh normal animal tissues, sarcoma, adenoma, iron nails, glass pearls, and pieces of wood, produced no reaction in the brain. Caustic chemicals, as chromic acid, nitrate of silver, and caustic potash, produced death, the time varying from sixteen hours to nine days; the effect on the brain being a more or less extensive necrosis. Injections of pus from various sources were fatal after a number of days, the brain showing many purulent foci. In none of these cases, however, was the characteristic train of symptoms, and the rapidly fatal ending of cancer implantation obtained. This led the experimenter to conclude that the carcinoma tissue exerted its fatal effect by a toxic action on the nerve centers, and an investigation of the poison of cancer was then undertaken.

By rubbing fresh cancer tissue in a mortar with sterilized water, and filtering, an opalescent, slightly alkaline liquid was obtained, which exhibited the poisonous properties of the cancer tissue, when injected into the brains of rabbits. In the case of this cancer extract, the death of the poisoned animal was very rapidly produced. With both the cancer tissue and the aqueous extract, the brain was pale and showed no reaction when death was produced early; but when the fatal termination was more prolonged, a reaction of an inflammatory character was observed. Control injections of distilled water, weak salt solution, and well water, failed to produce death, though symptoms of a temporary cerebral irritation manifested themselves. Injections of a one-half per cent. solution of carbolic acid produced epileptic symptoms, the animal living; but a one per cent. solution of carbolic acid produced clonic convulsions, stupor, paralysis of the extremities, and death in a few hours. Cerebral injections of a considerable quantity of Koch's lymph induced transitory irritation symptoms, but were not fatal. Injections of cancer extract into the jugular vein produced rapid death, with the usual brain symptoms. From these experiments, ADAMKIEWICZ is convinced that a toxic substance exists in fresh cancer tissue, and this substance he names "cancroin."

In studying further the effects of implantation of carcinomatous tissue, a very important observation is made by this investigator. After the death of the inoculated animal, the brain, together with the implanted graft of cancerous tissue, was cut into

serial sections, stained with safranin and methylen blue after the method of ADAMKIEWICZ, and examined microscopically. The sections exhibited a varying number of violet colored foci, distinctly marked off from the reddish nerve substance, and these foci lay in part in the cancer graft, and in part in the surrounding brain substance—often at some distance from the implanted tissue. From his examinations, ADAMKIEWICZ was led to believe that these foci were composed of *young cancer cells and cancer germs*, which had infiltrated the tissues. The interstitial substance of the implanted graft appeared somewhat swollen, and the alveoli were occupied by the shrunk remains of the original carcinoma cells; and in many points in the interstitial substance, the "cancer germs" could be demonstrated, as if in the act of emigrating from their mother cells. The brain substance about these infiltrations appeared injured, and the author attributed this to the destructive action of the escaped germs. This wandering of embryonic carcinoma cells and carcinoma germs was particularly remarkable because of the rapidity of the process, the widely distributed metastatic foci all having developed in the interval between the implantation of the graft, and the death of the animal—an interval varying from a few hours, to two or three days. To establish the relations of this curious phenomenon to that which follows the ingrafting of normal epithelial structures, ADAMKIEWICZ implanted pieces of fresh kidney into the brains of rabbits. No change in the epithelial cells could be observed; they were distinct and gave well defined staining reactions for some time; and there was no migration of the elements of these cells; and no metastatic foci. The kidney substance was eventually surrounded by leucocytes, and finally absorbed. The germs of the cancer grafts, then, possess the power of independent mobility, and exert an irritant effect on the brain tissue with which they come in contact—more than this, the brain substance removed from the metastatic infiltrations, becomes poisonous, so that, when inoculated into other rabbits, a piece of this brain tissue produces death, as did the original piece of carcinomatous tissue. In other words, the young carcinoma cells and the carcinoma germs possess the properties of *independent organisms*, resembling, in their mode of action, certain well known microbes. Now these active young cells, and germs, escape from the mother cells of the implanted piece of carcinoma tissue; and therefore, the mother cells must have the inherent tendencies of their offspring. Thus we are prepared for the stand taken by the author, when he asserts that *the parasite of cancer is the cancer cell itself*; and once more we are reminded of the views so long held by pathologists, that carcinoma metastases were produced by the transportation of the carcinoma cells, which was, after all, only another

manner of expressing the conviction that the cancer cell was the infective element.

The cancer cell is an independent living organism, says ADAMKIEWICZ, and because of its destructive action on the tissues of the living body, he calls it a "sarkolyte;" and since it resembles, in its formation and properties, the protozoan organisms belonging to the sporozoa, it is styled the "coccidium sarkolytus."

If we accept the hypothesis which makes the cancer cell the parasite of the disease, it allows an easy explanation of such phenomena as the origin of metastases, and the growth of transplanted carcinoma tissue. It would not be necessary for the transported carcinoma cell to carry with it the infecting microbe or coccidium; for the cell, being an independent organism, could originate a metastasis at its lodging place, by a reproduction of its kind. It could thus transpire, that a carcinomatous nodule could grow in an epithelial organ like the liver, entirely independent of the cells of its host, and it would then be easy to understand why the cells of such an affected organ never take part in the new growth, but atrophy and perish at the advancing border of the neoplasm. The "formative irritation" theory of BILLROTH, the "asymmetrical mitosis" theory of HANSEMAN, the theories of ZIEGLER, KLEBS, and of PFEIFFER, would be superfluous if the sarkolyte of ADAMKIEWICZ was the carcinoma organism. The observations of NOEGGERATH on the sexual chromatin substances of the nucleus of the carcinoma cells, are interpreted by ADAMKIEWICZ as supporting his theory, since he conceives it probable that there must be a varying relation in the sexual nuclear substances of the lowly organisms, of which his "coccidium sarkolytus" is a type. "Now, if the cancer cell is the parasite of cancer, and cancer produces a toxic substance, then the cancer cell must be the place of formation of 'cancroin,' and 'cancroin' must be the metabolic product of the cancer cell." This proposition is especially demonstrated by the rapid degeneration of the infiltrated brain substance, and the induction of poisonous properties in the brain substance itself, as is seen in cases of cerebral carcinoma implantations.

The labors of PASTEUR and of KOCH have demonstrated the principle, that the rational remedy against an infecting organism is its own metabolic product. Accepting this axiom, ADAMKIEWICZ proceeded to a study of the therapeutics of carcinoma. In order to carry out this plan of treatment, it was necessary to ascertain the nature of the cancer poison. ADAMKIEWICZ concluded that cancroin belongs to the group of toxins; but, on account of the difficulty of obtaining a sufficient quantity of the substance, it was impossible to make an accurate chemical analysis, and he was, therefore, obliged to resort to a compar-

ative physiological study of other toxic extracts, in order to assign cancroin to its chemical position. Furthermore, the difficulty in obtaining a reliable and constant carcinoma extract for therapeutic purposes, made it highly desirable to find a more available substance of similar physiological action. By a careful series of experiments, this investigator found that cadaveric tissue, and the extract from undecomposed cadaveric tissue, possessed poisonous properties, and produced symptoms preceding death, which simulated in every way those induced by cancroin, and implanted cancer tissue. But "cholin," the alkaloid of cadaveric tissue, possessed no therapeutic properties. This led to the trial of the nearly allied vinyl base, "neurin," an ingredient of LIEBREICH's protagon as obtained from the brain; and in its physiological properties, neurin was found to resemble the cancroin of ADAMKIEWICZ. Further experiments led to the adoption of neurin as the alkaloid for therapeutic purposes, and a trial of neurin in a case of epithelioma of the lip, apparently demonstrated its specific reaction against carcinomatous tissue—a reaction which very much resembled that of "tuberculin" on the lesions of tuberculosis. As the outcome of his investigations, and with the purpose of counteracting the irritant and possibly septic effects of the crude neurin, ADAMKIEWICZ neutralized the vinyl base (neurin) with citric acid, and saturated a 25 per cent. solution of this vinyl-citrate with carbolic acid. The phenol-vinyl-citrate, thus produced, was called "cancroin;" the original solution was prepared in three dilutions for clinical purposes, and its manufacture placed into the hands of one of the German chemical houses.

The monograph of ADAMKIEWICZ is concluded by a clinical history of the twenty-five cases of carcinoma and cancroin, which were subjected to the treatment by hypodermic cancroin injections. An interval of about two and one-half years has elapsed since the clinical studies were begun. From these reports, it appears that cancroin produces a rapid reaction in the carcinomatous tissue, often of an inflammatory and painful character. In the favorable cases, the primary reaction is followed by a necrosis of the elements of the cancer tissue, and, in some cases, this softening and disorganization of the tumor tissue was followed by a discharge of the necrotic carcinoma elements, together with a purulent fluid due to the reaction of the normal tissue elements against the dead carcinoma tissue. In the most favorable cases, the death and discharge of the tumor elements was followed by a reparative regeneration of the surrounding tissues. The cancroin injections appeared to exercise a marked tonic effect in several cases, the injections being followed by a diminished cachexia, improved nutrition, and in-

crease of body weight. On the whole, however, the results of cancerin injections, while apparently indicating a specific effect of the remedy on carcinomatous tissue, are not of a character to indicate a remarkable curative effect, as is even admitted by the author of the treatment. But it is too early to judge—certainly too early to condemn. We must hope, with ADAMKIEWICZ, that, in his new treatment, the *principle* is correct, and that, in due time, the treatment may be so modified as to realize the sanguine hopes of its discoverer.

An extended critical summary of this work of ADAMKIEWICZ is here impossible, for there are many statements of so startling and novel a nature, that they cannot pass the sober judgment of careful investigation without a painstaking analysis. In fact, even on casual study, the work seems burdened by numerous hypotheses which rest on insecure foundations. The "coccidium sarkolytus" will be subjected to the same searching scrutiny, as has been applied to the carcinoma coccidia of WICKHAM, SJÖBRING, PODWYSSOZKI and SAWTSCHENKO, etc., and, in this critical study, we fear the parasitic cancer cell will share the fate of other hastily proclaimed carcinoma organisms. Even were we to admit this bold conjecture of ADAMKIEWICZ, and recognize as a living parasite each one of the myriads of various carcinoma cells which present themselves to our view, how much nearer would we be to the question of the *origin* of this disease? From whence does the coccidium sarkolytus come? We would still be "breaking our heads" over the problems which have confronted ZIEGLER, KLEBS, HANSEMAN, NOEGGERATH, and others; and we would still find it necessary to call into requisition one of these very theories, which ADAMKIEWICZ apparently disdains, in order to explain the origin and development of the sarkolyte. From a clinical standpoint, also, it is not probable that the cancerin of ADAMKIEWICZ will receive the entire approbation of the profession; for, with the tragic disappointments of "tuberculin" before his eyes, the cautious physician will be slow to accept this new remedy. At the same time that it is full of rash hypotheses, the work of ADAMKIEWICZ is of great importance, for it serves to direct the carcinoma investigations into a new, and apparently very promising field. The *experimental* studies, as inaugurated by this research, must be followed; and it must be evident that many new facts await the conjoined labors of careful pathologists, along this line. Moreover, the recent remarkable investigations on animal extracts as remedial agents, as witnessed in the thyroid extract treatment of myxœdema, must indicate the promise which awaits the studies on cancer, in the direction laid down by ADAMKIEWICZ.

ASSOCIATION NEWS.

SECTION OF NEUROLOGY AND MEDICAL JURISPRUDENCE.

Preliminary program of the annual meeting to be held at Milwaukee, Wisconsin, June 6, 7, 8, and 9, 1893.

OFFICERS OF THE SECTION.

Charles K. Mills, M.D., 1909 Chestnut St., Philadelphia, Pa., Chairman; James G. Kiernan, M.D., 834 Opera House Block, Chicago, Illinois, Secretary.

Executive Committee.—O. Everts, M.D., Cincinnati, Ohio; H. N. Moyer, M.D., Chicago, Illinois; Justin E. Emerson, M.D., Detroit, Michigan.

The American Medical Association will meet at Milwaukee, Wisconsin, June 6, 7, 8, and 9, 1893. A preliminary program of the Section of Neurology and Medical Jurisprudence has been prepared and is appended, and it will be seen that the meeting promises to be one of great interest. The first session will be held on the afternoon of June 6. Two sessions will be held June 7 and 8, one in the morning and one in the afternoon. The last session will be held on the morning of June 9. Papers will be accepted for the final program until May 1, but not later, as all titles must be sent to the Chairman or Secretary by this date in order to allow sufficient time for the preparation of the programs for the meeting of the entire Association. If you have not yet indicated your intention to take part, you are earnestly requested to contribute a paper, to present cases, or to exhibit gross or microscopical specimens. It is desired by many of the members of the Section to have a dinner on one of the evenings of the meeting, the subscription to which will be three dollars. If you favor this proposition, please notify the Chairman or Secretary of your willingness to subscribe.

PROGRAM.

1. Anorexia Nervosa, by Dr. William Osler, Baltimore, Md.
2. Evidences of Paranoia Gleaned from the United States Patent Office, by Dr. Irving C. Rosse, Washington, D. C.
3. Acromegaly, by Dr. Harold N. Moyer, Chicago, Ill.
4. On the Weight of the Brain, by Dr. Henry H. Donaldson, Chicago, Ill.
5. Paretic Dementia in Women, by Harriet C. B. Alexander, Chicago, Ill.
6. Suggestions on the Treatment of Sclerosis of the Spinal Cord, by Dr. Daniel R. Brower, Chicago, Ill.
7. I.—Occupation Neuroses Affecting the Muscles of the Neck. II.—Syringomyelia, by Dr. Archibald Church, Chicago, Ill.
8. Malpractice in Insane Hospitals, by James G. Kiernan, Chicago, Ill.
9. I.—Hemiparaplegia; Report of a Case Completely Recovered after One Year's Duration. II.—Aural Vertigo. (Meniere's Disease.) By Dr. L. Harrison Mettler, Chicago, Illinois.
10. Race Degeneracy and the Jaws, by Dr. E. S. Talbot, Chicago, Ill.
11. Remarks on the Therapeutical Use of Static Electricity, by Dr. G. F. Lydston, Chicago, Ill.
12. Thoughts on the Causation of Insanity, by Dr. T. H. McBride, Milwaukee, Wis.
13. Recent Discoveries and Observations Bearing on the Subject of Poisoning from Exposure to Arsenical Wall Papers, by Dr. James J. Putnam, Boston, Mass.

14. American Inebriate Asylums, by Dr. Thomas D. Crothers, Hartford, Conn.
15. Transverse Myelitis, by Dr. E. D. Fisher, New York, N. Y.
16. What Should Constitute Legal Responsibility, in the Medical Sense, in Insanity, by Dr. Landon Carter Gray, New York, N. Y.
17. On the Proper Method of Determining Whether an Alleged Lunatic shall be Declared Legally Insane or not, by Dr. Graeme M. Hammond, New York, N. Y.
18. Care of Epileptics, by Dr. Frederick Peterson, New York, N. Y.
19. Syphilis of the Cord Simulating Tabes, by Dr. Bernard Sachs, New York, N. Y.
20. Some Medico-Legal Experiences in Railway Cases, by Dr. Thomas G. Morton, Philadelphia, Pa.
21. Some Points in the Weir Mitchell Rest Treatment, by Dr. Wharton Sinkler, Philadelphia, Pa.
22. A Study of the Gliomatous Process in the Spinal Cord, illustrated by Microscopical Sections, by Dr. James Hendrie Lloyd, Philadelphia, Pa.
23. The Symptomatology of Cerebellar Tumor, by Dr. Francis X. Dercum, Philadelphia, Pa.
24. A Study of the Ocular Symptoms in Friedreich's Disease, by Dr. Charles A. Oliver, Philadelphia, Pa.
25. Has the So-Called Suspension Treatment of Diseases of the Spinal Cord Proved an Addition to our Therapeutics? by Dr. Hobart A. Hare, Philadelphia, Pa.
26. I.—Notes on the Treatment of Exophthalmic Goitre. II.—Insanity in Childhood, by Dr. J. Madison Taylor, Philadelphia, Pa.
27. A Contribution to the Study of Friedreich's Ataxia, by Dr. Charles W. Burr, Philadelphia, Pa.
28. The Diagnosis of Lead Convulsions, by Dr. D. D. Stewart, Philadelphia, Pa.
29. A Consideration of the Different Trigeminal Operations for the Relief of Pain, by Dr. John B. Deaver, Philadelphia, Pa.
30. Experiences of a Chemist with Delusional Insanity, by Dr. Henry Leffman, Philadelphia, Pa.
31. Hemianopsia and Certain Symptom-Groups in Sub-Cortical Lesions, by Dr. Charles K. Mills and Dr. G. E. de Schweinitz, Philadelphia, Pa.
32. Paranoia in some of its Medico-Legal Aspects, by Dr. Charles K. Mills, Philadelphia, Pa.
33. Early Recognition and Rational Treatment of Moral Imbecility, by Dr. Isaac N. Kerlin, Elwyn, Pa.
34. A Case of Sub-Cortical Cyst of the Lower Part of the Ascending Parietal Convolution; Operation—Recovery, by Dr. Theodore Diller, Pittsburgh, Pa.
35. Insanity of the Aged, by Dr. Frank T. Norbury, Jacksonville, Ill.
36. Gynecology in the Insane, by Dr. Annette McFarland, Jacksonville, Ill.
37. Dyspepsia as a Nervous Disease; or, Indigestion in its Nervous Aspects and Relations, by Dr. C. H. Hughes, St. Louis, Mo.
38. Case of Syphilis of the Pia, Simulating Tumor of the Brain; Mono-spasm and Mono-Paresis; Operation; Death on the Third Day, by Dr. J. T. Eskridge, Denver, Col.
39. The Inadequacy of the Morbid Anatomical Changes Found Post Mortem to explain the Manifestations of Insanity, by Dr. H. A. Tomlinson, St. Peter, Minn.
40. Degrees of Responsibility as Found in the Insane, by Dr. R. M. Phelps, Rochester, Minn.
41. Surgery in the Insane, by Dr. C. B. Burr, Pontiac, Mich.
42. The Special Influence of Alcohol on the Body, by Dr. T. L. Wright, Bellefontaine, Ohio.

SECTION OF PHYSIOLOGY AND DIETETICS.

The Secretary suggests that the Section consider:

1. The Paddock Pure Food and Drug bill now before Congress, as it was said that the Association had not knowledge enough to vote on it.
2. A Symposium on Infant's and Invalid's Foods by members who have had personal experience, pro or con.
3. Oral or written reports of food ethics as they now exist in the Association.

BOOK REVIEWS.

TRANSACTIONS OF THE AMERICAN ORTHOPÆDIC ASSOCIATION. Sixth Session; Volume V; 1893. Dornan, 100 North Seventh Street, Philadelphia.

This volume presents the same attractive features we have come to expect in this series. It has 282 pages and eighty-nine illustrations, and contains very much of the American orthopædic literature for the year. Club-foot, especially as to its treatment, receives the most extended consideration, and the diverse views may be summed up as follows: The treatment of congenital club-foot should be commenced immediately after birth, and should consist of frequent stretching by hand and retention by some simple brace or plastic dressing. Many cases can be fully corrected by the time the child comes to walk; then a retention walking brace should be used for from one to two years. Such cases as are not corrected by the time they begin to walk would be subjected to an operation by some, and treated by a stretching brace by others. Cases that have reached the age of one to three years without treatment may be treated by a stretching brace, or be forcibly corrected at a few sittings by a wrench or machine, being held meantime by a simple retention brace or plastic dressing; or they may be subjected to operation at once. Older cases, inveterate and relapsed cases should be subjected to operation. The operation should consist of a division of all shortened soft parts, such as tendons and ligaments, either subcutaneously or openly, and an immediate over-correction of the deformity by hand, wrench or machine. In most cases this will be sufficient, but in a few linear osteotomy of the neck of the astragalus and cuneiform osteotomy of the os calcis may be demanded, as may excision of the astragalus or even amputation. All cases, no matter how corrected, must be retained, until by use, the articular surfaces have adapted themselves to their new relations, and the soft parts on the side of the convexity have taken up the slack.

DISEASE IN CHILDREN. A MANUAL FOR STUDENTS AND PRACTITIONERS. By JAMES CARMICHAEL, M.D., F.R.C.P. Ed. Physician Royal Hospital for sick children; University Lecturer on Disease in Children, Edinburgh. Illustrated with 31 charts. New York. D. Appleton & Co. 1892; pp. 590. Price \$3.00

An abridged work on diseases in childhood would be a properly descriptive title for this book. The essentials principally are given; the minutiae are left to the larger books. It is an excellent treatise for the use of students in preparing for lectures or examination on the subject. The work of condensation has been judiciously done.

While commending the book in a general way we cannot conscientiously refrain from noticing some of its peculiarities. In the chapter on diphtheria no mention is made of sulpho-calcine as a solvent of the membrane, nor of peroxide of hydrogen which is advocated confidently by the latest works on therapeutics and by numerous writers in the journals. It looks odd to see the nominative and accusative cases substituted for the genitive in prescription writing, as occurs five times in three prescriptions on page 110, in treating of pertussis. The accusative of aqua is used in nearly every instance. There is an exception on page 559 in a formula copied from Hebra.

On page 48 occurs this sentence: "A mixture of nitric glycerine and infusion of calumba often forms a useful combination" in tuberculosis of children. Is there not danger in this combination of nitric acid and glycerine that nitro-glycerine will be formed? Glycerine is a great favorite with the author; a large proportion of his prescriptions contain it.

In treating of nasal catarrh he advises the douche, although it is a dangerous procedure generally discarded by careful physicians. The fluids used are very likely to find their way through the Eustachian tube into the middle ear, as the child swallows, adding a Seylla to a Charybdis. In acute coryza no reference is made to the fact that the disease can be aborted—practically prevented—by minute doses of morphia with atropia, often by a single dose. Nothing is said of treating catarrh of the nose and throat by means of the very efficacious sprays of the popular preparations of purified liquid vaseline and eucalyptol, menthol, oil of pine, eubels, camphor-menthol, etc. He adheres to the less effective, antiquated watery solutions.

In croup he uses zinc, ipecacuanha and copper as emetics instead of turpeth mineral which is more prompt and less depressing than most of the emetics. For hypertrophied tonsils he uses alkaline and astringent applications, while American surgeons are generally agreed that they do not reduce the size of the glands. The treatment is good for the doctor, but bad for the patient. As a rule, drugs are spoken of in a general way. The proper doses are not usually indicated, nor the frequency with which they should be repeated in order to produce definite results, both of which are important points in prescribing for children. Lists of remedies are mentioned and the practitioner is left to select according to his fancy, and to look up the proper dosage and methods of applying, in some other book. This incompleteness often leaves a rather unsatisfactory and doubtful state of mind after reading the author's remarks on treatment. Too much is left to be guessed at, or to be supplemented by works on therapeutics.

A useful appendix gives directions for the preparation of foods, such as beef tea, barley and rice water, etc., for poultices and baths, and for calculating doses of various medicines for different ages.

VARIOUS FORMS OF HYSTERICAL OR FUNCTIONAL PARALYSIS.
By H. CHARLTON BASTIAN, M.D., F.R.S. Philadelphia: J. B. Lippincott Company. 1893.

The nucleus of this little work appeared last year in the form of four lectures in the *Lancet*. Since then the discussion has been extended and a number of new cases added.

In the introductory remarks the writer states some of the difficulties of the subject, and points out how at the best a diagnosis of "functional" or "hysterical" paralysis is but a makeshift and may be positive error. He in common with most neurologists regards a diagnosis of this kind as only to be stated after all methods of interrogating the nervous system have been exhausted. It is only possible by excluding all the known organic derangements which could possibly give rise to the condition. In this connection he calls attention to the hysterical concomitants of organic disease, which has been so admirably worked out by Buzzard. He inclines to the view that functional paralysis may be either cerebral or spinal, but admits that at present there are no real grounds for making any such distinction. No reason can be assigned why functional failure should not take place in any part of the nervous system, though as a matter of fact it is more prone to occur in some parts than in others.

While he advances no theory regarding the pathogenesis of these lesions, he ventures the suggestion that disturbance in the vaso-motor nerves may account for some of the cases, especially since the researches of Bradford show that the brain has a vaso-motor nerve supply, though less efficient than those found in other portions of the body.

Functional paralysis of a cerebral type is opened by a description of a case that he regards as due to defective functional activity of the Rolandic convolutions. He calls

the motor region the kinæsthetic area. In this of late he has been followed by Horsley. Essentially the so-called motor region is believed to be sensitive to muscular movements, or the seat of "muscular sense." This view was advanced as early as 1880 in a work on "The Brain as an Organ of the Mind." We are surprised that there is no reference to the same view as advanced by Meynert, who had arrived at precisely the same conclusions in arguing that the brain was a mere reflex organ and the sum of its activities was embraced in its sensory impressions. As space could make no impression on the senses, it was necessary to assume that the motor cortex was a percipient apparatus for muscular movements. It is gratifying to have the same ideas brought out by such widely divergent schools as those of Edinboro and Vienna.

He next considers impairment of the function of the posterior third of the hinder portion of the internal capsule, the chief symptom of which is a loss of sensation on the opposite side of the body, including the muscle sense.

Hemianesthesia with paralysis only when the eyes are closed, and those in which paralysis exists without reference to vision, form one of the most interesting chapters in the book.

Twenty-five pages are taken up with a discussion of functional paralysis of spinal origin. These cases are classified into *a*, those of a spastic; and *b*, those of flaccid type.

The author admits the enormous difficulties surrounding the inquiry, but is deserving of great credit for his able attempt to let a little light into this Central Africa of neural pathology.

The work closes with appendices on "The muscular sense; its nature and cortical localization," "On the neural processes underlying attention and volition," and "Is there a double representation of touch and common sensibility in each cerebral hemisphere?"

MISCELLANY.

AMERICAN CLIMATOLOGICAL ASSOCIATION.—The tenth annual meeting of the Association will be held in Philadelphia, Thursday, Friday and Saturday, May 25, 26 and 27. Members having papers to present will please communicate with the President, Dr. R. G. Curtin, 22 S. Eighteenth St., Philadelphia, or the Secretary, Dr. J. B. Walker, 1617 Green St., Philadelphia, at as early a day as possible.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from March 18, 1893, to March 31, 1893.

First Lieut. George D. De Shon, Asst. Surgeon U. S. A. (Ft. D. A. Russell, Wyo.), is granted leave of absence for sixteen days, to take effect on or about April 1, 1893.

Capt. William G. Spencer, Asst. Surgeon U. S. A., is granted leave of absence for two months on surgeon's certificate of disability, with permission to leave the Dept. of the Platte.

Lieut.-Col. Charles C. Byrne, Deputy Surgeon-General U. S. A. Medical Director, Hdqrs. Dept. Columbia, is granted leave of absence for one month, with permission to apply for an extension of one month.

OFFICIAL LIST OF CHANGES in the Medical Corps of the U. S. Navy, for the Week Ending March 25, 1893.

Surgeon J. M. Flint, detached from U. S. S. "Miantonomoh" and granted one month's leave of absence.

Surgeon Dwight Dickinson, ordered to the U. S. S. "Miantonomoh."

Surgeon J. R. Waggener, ordered to the Norfolk Navy Yard. Surgeon M. C. Drennan, detached from Navy Yard, Norfolk, and to the U. S. R. S. "Vermont."

Surgeon H. J. Babin, detached from U. S. R. S. "Vermont" and wait orders.

P. A. Surgeon C. W. Rush, sick leave of absence extended three months.

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No. 15.

ORIGINAL ARTICLES.

THE SULPHURIC ACID TREATMENT OF CHOLERA AND OTHER CHOLERAIC DISEASES.

BY E. CHENERY, M.D.,
OF BOSTON, MASS.

The cholera, like nearly all the other choleraic diseases, is a most dangerous and deceitful disease. In the first place, it cheats its victims by the decided luxury of the early diarrhœa and therefore puts the person off his guard. In the second place, it does its work all too often in the interior by draining the watery portion of the blood into the bowels without its appearance externally. The often mysterious and sudden cases are largely of this kind, the copious external flood coming down later in the disease, or on relaxation of the sphincter at death. In both these respects the public should be informed, that proper aid may be early sought.

To these points for the people, I want to add the most emphatic of all for the profession—that the true choleraic discharges are *alkaline*, while those of cholera infantum are mostly *acid*. Therefore the alkaline treatment of the latter, particularly by the hyposulphite of soda, is in the line of success, while the acid treatment, particularly by the sulphuric acid, is the proper treatment for the Asiatic cholera, since the choleraic microbes do not flourish in acid liquids, while they do in alkaline, the acid preventing their development and work. This is the most practical fact which the whole science of the cholera has yet developed. For while opium, empirically, is serviceable in checking the early diarrhœa, the fixed mineral acids practically beard the wolfish microbes in their den. And certainly no other one treatment has developed so much in its favor as the acid. That it has done so no more, is because it has not been wisely administered and properly trusted.

So far as I have had experience in the use of acid in choleraic diarrhœa, I have been highly pleased with the results. But my purpose in this writing is to show some cards I have in my hands.

Pettenkofer noted the alkalinity of choleraic dejections, and states that safety lies in preventing the ammoniacal change in the urine and fœces, and that the agents which will accomplish this are the mineral salts, the mineral and carbolic acids. The excrements may therefore always be rendered innocuous and conveyed away from the vicinity of human dwellings while still in an acid and harmless state.

Dr. W. I. Cox, of Kensal Town, was the first to use sulphuric acid in cholera in England. Through the aid of Dr. Herepath of Bristol, England, he made the discovery that a celebrated Austrian remedy consisted chiefly of sulphuric acid.

Dr. S. T. Chandler, of Kentucky, having had experience in the epidemics of 1854 and 1873, in the use of the acid, states that it "relieves the nausea, arrests the vomiting like a charm, and gradually the dejections are stopped."

Dr. McClellan confirms the value of the acid treatment, and gives it the credit of reducing the cholera mortality to 8 per cent., while the lowest by other means is 23 per cent. and from that up to 59.

Dr. John M. Woodworth, supervising surgeon U. S. Marine-Hospital Service, said: "Beginning with the year 1814, the cholera literature down to the present time abounds in proofs, clinical, physiological and metrological, of the efficacy of sulphuric acid."

Bristowe, Aitken and others express a disbelief in the power of medicines to cut the cases of cholera short, yet they make no reference to the mineral acid treatment. The writer is sure that the cholera and the early stages of the cholera proper will almost certainly yield promptly to the acids alone, or them in connection with small doses of laudanum.

"My own conviction is," says Dr. Fuller, who had large experience with the use of sulphuric acid, "that in sulphuric acid we have an antidote—a specific—against choleraic diarrhœa, if not against the worst forms of cholera, as powerful and energetic, and as certain in its effects, as cinchona bark or quinia against a paroxysm of ague."

From these cases, however, must be excluded the bilious and chronic diarrhœas. Fuller is emphatic in saying that "in epidemic diarrhœa, in acute autumnal diarrhœa, and in the more decided choleraic diarrhœa, I have known no single instance of its failure; indeed, the more choleraic the diarrhœa the more speedily are its curative effects produced."

It is evident that the dosage and the frequency and care in its administration, as in the administration of any other powerful drug, must be considered, if there is to be the desired effect. As I read, I am persuaded that this has not been the case with most physicians with respect to this remedy. I therefore let Dr. Fuller have his own say: "If those gentlemen who make trial of the remedy so strongly recommended by Mr. Buxton would use it as they ought, in the manner and in the dose he directs, and administer it only in proper cases, we should seldom, if ever, hear of its failing to arrest the course of the disease. In every instance within my own knowledge," says he, "in which it has failed in its efficacy, the blame has been chargeable upon those who have administered it, rather than upon any want of virtue in the remedy itself. They have either given it in insufficient doses, or else in cases of bilious diarrhœa with foul breath and loaded bowels, which would have been benefited by a brisk purge of calomel and rhubarb." "In Asiatic cholera, given in 3ss doses of the dilute sulphuric acid, it exercises a most favorable influence." (See Braithwaite, Part 28, page 306.)

To this add what Mr. W. Wilkinson says: "If the serous fluid lost be considerable or if the disease should run into its third stage, it is of importance to administer some astringent which can be depended upon, together with some medicine, so to uphold or stimulate the nervous power as to prevent entire loss of control over the capillaries of the intestinal mucous membrane." He corroborates the opinions of several members of our profession as to the efficacy of sulphuric acid. Therefore he would "in every case in the second stage, after the preliminary, or immediately in the third stage, when from the copious action of the bowels the preliminary treatment would be unnecessary, prescribe dilute sulphuric acid, 3ss; strychnia in acid phosphoric solution, one-sixteenth of a grain."

The acid is rarely rejected except it be not sufficiently diluted, or something else is added to it. The first dose may be rejected. In suitable doses and in proper time it is wonderful how speedily the cramps, neuralgias and vomiting cease and the cold, contracted skin warms up.

Dr. Fuller thinks success depends more on the manner of giving the acid than with most remedies. He regards twenty minutes between doses quite sufficient in ordinary cases, and that ten minutes is enough in the severer ones. A dose that is rejected should be followed by another immediately, but this rarely occurs. If retained the drinks of the acid water may be more and more copiously taken, to extensively flush the intestinal tract.

Dr. Miller gives account of twenty-seven cases of choleraic diarrhoea treated with the acid, some of which cases were very bad, and some of them infants. His prescription consisted of dilute sulphuric acid and comp. tincture of cardamoms.

Dr. Sheppard used the acid treatment in twenty-seven cases of English cholera. He succeeded in all but one, and concludes as follows:

In these cases sulphuric acid is more efficacious than alkalies, opiates and astringents, comparing as ten to one.

It is more active (especially in children), greatly exceeding twenty to one.

It appears to act in a more rational and scientific manner, by increasing the tone of the mucous membrane of the alimentary canal, rather than by astringing its pores.

The worse the case the more rapid and marvelous is the cure—a most striking feature as compared with the treatment by chalk and opium. (See Ranking's Abstract, No. 16, p. 90.)

Wherever the cholera gains a foothold, all alkaline and fermentable fluids should be discarded, and lightly acidulated drinks used. Weak aromatic sulphuric acidade, carefully prepared and taken through a glass tube, would be very pleasant, refreshing and wholly harmless. Such drinks might be substituted for the soda fountain by the apothecaries to profit and advantage, a glass two or three times a day being a good prophylactic.

MYRRHOLIN is a solution of one part of myrrh in one of oil, and is said to have given good results in tuberculous laryngitis; it is administered in capsules containing 0.20 gm. of myrrh and 0.30 gm. of creosote.—*L'Union pharm.*

THE TREATMENT OF DIPHTHERIA.

Read before the Pennsylvania State Medical Society in May, 1892.

BY JOHN M. BATTEN, M.D.
OF PITTSBURGH.

I do not propose to offer anything new on this subject, but only to state a treatment that has been reasonably successful in my hands.

In the fall of 1870, my attention was first directed to the efficacy of the calomel treatment in the so-called pseudo membranous croup in the following novel and somewhat accidental manner. This was before Dr. W. C. Reiter, of Pittsburgh, published his monograph on the treatment of diphtheria, and it was during a time when pseudo membranous croup was treated with emetics such as Turpeth mineral, ipecac, tartar emetic, and other relaxing remedies, drugs which I never was satisfied as to their efficacy and was always skeptical as to the benefit that might be derived from their use in the treatment of this disease. At the time above stated I was called to see a case suffering with the above named disease. The case was a very grave one. A boy three years of age was lying in a crib gasping for air and with an anxious countenance. The respirations were abdominal. Beads of sweat were standing out on his face. The case I thought was a proper one for tracheotomy. I sent for Dr. A. M. Pollock, of Pittsburgh, to counsel in the case. The doctor coincided with me as to the necessity of an immediate operation. But when the parents of the child had had explained to them the full import of the operation they would not consent to it. We then put the child on three grains of calomel and one grain of ipecac every hour, with inhalation of steam from slaking lime. The next day about noon, after having seen the patient in the forenoon, I was discharged. An irregular was called in, and as I learned afterwards, that about the time that fifty-four grains of the calomel and eighteen grains of ipecac had been taken, and at the time the first so-called medication of the irregular commenced, the boy expectorated the membrane and thereafter recovered.

In 1874 another case. A boy, six years old, was suffering with the same disease. For two days he was in imminent danger of death from asphyxia, when I put him on three grains of calomel every hour, and in twenty-four hours thereafter he expectorated the membrane and recovered. This boy was treated about the time, either before or after Dr. William Pepper reported a successful treatment in pseudo-membranous croup with bichloride of mercury.

At that time the profession believed that pseudo-membranous croup and diphtheria were dual diseases, but I believe now they are considered by the profession to be one and the same disease. It may be paradoxical but my experience teaches me to have more faith in the calomel or corrosive sublimate treatment in the so-called pseudo-membranous croup and in the mild form of pharyngeal diphtheria, where the diphtheritic membrane is white and not deep, than I have in the use of either in the more malignant form where the membrane is grey, deep, and the parts around swollen and red. In the more malignant form of pharyngeal diphtheria I have had more success in the muriatic tincture of iron and chlorate of potash treatment with whiskey ad libitum.

In the more malignant form of pharyngeal diph-

theria, as may be inferred from what I have already said, I have been reasonably successful with tincture of the chloride of iron and chlorate of potash and whiskey treatment. Other physicians claim that they have been most successful in this form of the disease with calomel or corrosive sublimate, but I have not had the same satisfactory results with the latter treatment. The tincture of the chloride of iron has a dual efficacious effect in diphtheria. Locally it acts as an antiseptic. Constitutionally it is a tonic. The chlorate of potash also acts as an antiseptic. Care should be taken that the chlorate of potash is not given in too large doses. To an adult not more than one and a half to two drachms, should be given during twenty-four hours. To a child one year old not more than twenty grains during the same time, and to a child two or three years old, a drachm is sufficient. With this drug given in quantities according to ages as above enumerated the physician should be watchful that it does not irritate the stomach nor kidneys, nor that the same large doses be continued for many consecutive days. Fatal have been the results in some cases when this precaution has been disregarded.

Whiskey has also a dual efficacious effect when administered in cases of diphtheria. Locally it is an antiseptic. Constitutionally a stimulant. Patients suffering with diphtheria tolerate the remedy well, and it can be administered in large quantities without having an overstimulating effect. In the administration of whiskey we should not push it to a point where it might disagree with the stomach. However, in all our medication we should endeavor not to make the stomach rebellious.

With regard to the calomel treatment if the good results of this treatment is not evident in two or three days, it should be dropped. Last June I saw, in consultation with the physician in attendance upon a case of pharyngeal diphtheria, the evil results of too long a continuance with the calomel treatment. It had been continued in three grain doses to a child five years old, for more than a week when the child died. The case was likely complicated with mercurial poisoning, and was of scrofulous diathesis. Strumous children do badly under calomel treatment.

If the throat presents an inflammatory condition, small pieces of ice may be allowed to melt in the mouth. If the throat has a septic discharge mild antiseptic washes, sprays or gargles, as a solution of bichloride of mercury, peroxide of hydrogen, chlorate of potash, carbolic acid, salicylic acid, boric acid, lime water, chlorine water, or iron, may be used but these should never be too strong, so as to have an irritating effect. Heretofore I have not been an advocate of local applications to the throat in the treatment of diphtheria, except in isolated cases, as I have thought the remedies prescribed and taken into the stomach had also an antiseptic effect locally, and that the inconvenience of the patient brought about by their use did more harm than good.

With our present knowledge of diphtheria, I think we may assert without fear of successful contradiction that the following propositions as facts are well established.

That the false membrane of diphtheria is doubtless produced by the earliest products of the bacillus diphtheria.

That diphtheria first manifests itself locally, usually in the pharynx, larynx or nasal passages.

That the constitution is secondarily affected by the later products of the bacillus diphtheria.

That there is no evidence at present that there is any disease other than diphtheria that will produce false membrane in the larynx.

That when croup is caused by false membrane in the larynx, it is laryngeal diphtheria.

Now since diphtheria is first a local disease and is produced by the earliest products of the bacillus diphtheria, the rational treatment would appear to be in the early stage of the disease, if possible to attack the bacillus diphtheria *in situ*. For this purpose Dr. August Seihert has devised an implement by which the bacilli can be reached, and he claims destroyed, by injecting strong chlorine water underneath the pseudo-membrane. The implement used has a number of hypodermic points set closely together on a disc, and these points may be made to penetrate the pseudo-membrane through which the chlorine water or any other suitable antiseptic may be injected, thereby coming in immediate contact with the bacilli. Dr. Alexander Fulton, of Philadelphia, claims that he has had thirty-seven consecutive cures of pharyngeal diphtheria by the local application of twenty grains of nitrate of silver in one-half ounce of rose water applied with a brush.

When the earliest products of the diphtheria bacillus is found in the nasal passages it would seem to be our duty to attack it there with a suitable antiseptic (or bacillicide) by douche, spray or injection.

Diphtheritic paralysis, which often follows diphtheria, is invariably complicated with anæmia. These cases should be carefully fed and treated. Iron, quinine and strychnine are appropriate remedies where there are no contra indications to their use. Many cases improve under this treatment, but the improvement is not rapid. In one case which came under my observation in which the left arm of the child was paralyzed after a severe attack of diphtheria, the paralysis remained permanent. Sometimes it is better only to give one of the above named drugs at a time and alternate one with another as the case may indicate. Electricity is often a valuable remedy and is of benefit when other remedies may fail.

The patient suffering with diphtheria should remain in bed during the disease and should not be allowed to rise too soon after convalescence is established. Fatal heart failure has too often been witnessed by not regarding this rule.

We should not forget to sustain the patient with a concentrated nourishment such as milk, cream, beef essence, eggnog, milk punch, and quench thirst with plenty of pure water.

In the treatment of diphtheria further than can be done with antiseptics locally in the early stages of the disease before the constitution is affected, there seems to be no specific. Each case should be treated on its own merits. There is much, however, that can be done in a prophylactic way that may ameliorate the gravity of disease, if not entirely prevent it. The sewerage of the house should be as perfect as can be. The escape pipes should be trapped. The house should be well ventilated and, as cleanliness is next to Godliness, it should be kept clean. The cellar should be well aired, freed from all decaying vegetation and its walls whitewashed once or twice a year. The beds and bedding should be kept scrupulously clean.

The carpets should be taken up and cleaned at least once a year, and floors scrubbed. Drawers, book-cases and closets should also be renovated. Sulphate of iron, Labarraque's solution of soda or chloride of lime may be used to disinfect the cellar when necessary.

The family should not use spring or well water for drinking purposes without it first having been subjected to a boiling heat. The children in a family should be well watched and when any symptoms may arise indicating those of diphtheria the family physician should be called in immediately.

A common situation for the barn-yard, pig-sty and water-closet in a country place or residence is on an elevated portion of ground overlooking a spring or well of water from which the family get their supply of drinking water. This breach of sanitary measures I have long since noticed and have known the inhabitants of such districts suffer greatly for this violation of sanitary measures. In a village in which I lived when a boy I remember an epidemic of dysentery broke out in the place, I thought then it was a visitation of God. I know now that God had nothing to do with it. It was caused by a contamination of drinking water from wells which were located lower than the barn-yards, pig-styes and water closets of the place. Country people are slow to learn the importance of observing a strict sanitary law in erecting their dwellings and outbuildings. In the country districts with which I am well acquainted these same violations of sanitary measures still exist and they still are severely punished in disease and death by such violations. The sanitary measures which are intended to be enforced in cities are not as perfect as they might be, but they are far in advance of those observed in country districts. A knowledge of hygiene and the laws governing hygiene should be taught in all our public schools and other institutions of learning and the importance of such a law being practically enforced. Until such a knowledge is imparted to all of our citizens, and the importance of observing a strict sanitary law everywhere, we may expect diphtheria and other germinal diseases to exist among our people.

If one member or more of a family are attacked with diphtheria, the house should be immediately, if not already put in order sanitarily and fumigated with sulphur. The remaining children of the family that can conveniently should be sent away, or into a room in the same house as far away as possible from the patient. None of the members of the family except the nurse should be allowed in the same room with the patient. No kissing the patient by the mother or other relatives should be tolerated.

It has often occurred to me that conditions favorable to the cause and spread of diphtheria and other germinal diseases often lurk in those spaces between the ceiling and the floor immediately above, between the joists, in dwellings. These spaces are no doubt, receptacles of years of accumulated dirt and filth which must be fruitful factors in the cause and spread of diphtheria. And I have often thought that our ancestors were more fortunate than we are in allowing these spaces to remain open and thereby preventing these accumulations.

Inasmuch as I deem it a duty to respect the dead and to bury or dispose of their bodies in an honorable and a respectable manner, yet we have a far

higher duty to perform, and that is to take care of the living. Hence, the bodies of those who die of contagious or infectious diseases should be disposed of in such a way as not to endanger the life or health of the living.

In September, 1891, Professor J. Lewis Smith, New York, wrote: "We need scarcely rehearse the awful devastations of this dread disease. We are not alarmists, but in the mortality statistics compared for the last two decades, we as sanitarians, must admit that we have not got at the root of the evil. Our health regulations are superficial at best, and our courage falters in the face of an advancing epidemic. In France the total number of deaths is in excess of the births, and this state of affairs appalling to the nation, is largely due to diphtheria. There were nearly three thousand deaths in New York and Brooklyn, caused by diphtheria and croup in 1889." He further states, to come to the point, which we desire to quote and emphasize, "Diphtheria is a filth disease. The Klebs Loeffler bacillus obtains a nidus favorable for its development and propagation in filth accumulations of all kinds."

Dr. Sternberg, in his Lomb prize essay, refers to the fact that damp, foul places such as sewers, cellars, ill-ventilated spaces under floors where the sunlight never enters and where refuse collects, afford conditions favorable to the growth of diphtheritic germs. These germs, conveyed by house drainage or otherwise to a deposit of filth, grow and multiply in it and ascending in foul vapors which arise from it, communicate diphtheria to the unfortunate child who inhales them.

THE TREATMENT OF ALCOHOLIC INEBRIETY.

Read before the Northwestern Medical and Surgical Association, March 18, 1893, and before the American Association for the Study and Cure of Inebriety, March 23, 1893.

BY FREDERICK PETERSON, M.D.,

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There is no class of cases that comes under the care of the physician that presents greater difficulties in the way of treatment than that of sufferers from alcoholic inebriety. To the practitioner are brought such as are in the stage of alcoholic neurasthenia, such as present symptoms of acuter alcoholic conditions, such as have delirium tremens, such as are insane from the abuse of this poison, and such as exhibit actual organic lesions of the nervous system, like alcoholic neuritis and alcoholic pseudo-ataxia. Patients may come under his observation in any of these states, or in the intervals between paroxysmal outbreaks of the drink habit, when they may present no particular symptoms. He may be required to treat the *nervous* conditions of alcoholic excess, and there may be lesions of other than nervous viscera demanding his attention, like gastric disorder and cirrhosis and their sequelæ. Thus, there are states for immediate attention, and there is the habit itself exacting his best judgment and skill in the way of eradication and prophylaxis. There is, therefore, a wide field for therapeutic applications of great variety, but into all of this region it is not the purpose of the writer to venture. Leaving out the treatment of the chronic organic conditions such as lesions of the peripheral nervous system and viscera, our advice

is generally sought to relieve the excitement or nervous exhaustion of a recent debauch, and to formulate some plan for combating the tendency to recurrence.

In the first instance, the bromides and chloral are among our best agents when the excitement and insomnia are moderate in degree. When severe, we may have to employ some such remedy as duboisine, $\frac{1}{200}$ to $\frac{1}{100}$ of a grain by mouth or hypodermatically. Strychnia should be used under all circumstances, as well in conditions of excitement, as in conditions of neurasthenia following upon it. It is often an efficient hypnotic in these cases. It is best given hypodermatically. The nitrate of strychnia is preferable, and may be administered in doses of $\frac{1}{60}$ to $\frac{1}{32}$ of a grain, every two to six hours. The beneficial effects of hydrotherapy are not to be ignored, and in all instances it is better to make use at first of the hot wet pack for insomnia instead of narcotics internally, only resorting to the latter where the former fails to induce the desired effect.

The hot wet pack is thus applied :

A blanket 9x9 feet is spread upon the bed, and on this a sheet wrung out dry after dipping in hot water. The patient lies down upon the hot wet sheet, and this is then folded over him, and everywhere adjusted closely to the body surface, the blanket being similarly evenly folded over this, and other blankets added if necessary. The patient remains in this an hour or longer—all night if asleep.¹

Naturally the stomach should be attended to, and the intestines relieved.

Thus, the best treatment of acute alcoholism of any form may be briefly summarized :

1. Cut off all alcohol, and confine to bed.
2. Blue pill at night, followed by saline cathartic.
3. Hot wet pack for sleeplessness.
4. Hypodermatic injection of nitrate of strychnia, gr. $\frac{1}{60}$ to $\frac{1}{32}$.

5. Water, milk, kumyss, broths, soup, meat juice, raw eggs, arrowroot, juicy fruits and the like, when there is gastric disturbance.

This is the outline, in short, of a kind of treatment adapted to all cases of acute alcoholism, though as before stated, bromide and chloral, or duboisine, are indicated in a certain number of instances.

In chronic alcoholism, which manifests itself most commonly as a form of neurasthenia, the following should be the ordinary routine treatment :

1. Cut off alcohol.
2. Hot wet pack for insomnia.
3. Disturbances of the alimentary canal to be met

by aperients and dyspeptic remedies (rhubarb and soda, hydrochloric acid and the like). The diet should be milk, eggs and vegetable foods, meats rarely.

4. Strychnia again the main agent to restore nerve tone; best given hypodermatically, but may be given by mouth in combination with quinine, or in fluid extract of cinchona ($\frac{1}{60}$ to dr. j), or in infusion of gentian.

Having now briefly gone over what I consider to be the best methods of meeting immediate conditions apparent in any case of inebriety brought to the physician for advice and treatment, the more important question arises as how to rid him of the habit—how to cure the disease of inebriety. This is a

most complex question, and one that has for many decades commanded the attention of all men, laymen, lawyers, physicians and charlatans. Either the desire for alcohol must be got rid of, or the alcohol itself must be made unattainable. To eradicate the desire appeal has been made to the enfeebled will of the victim by lectures, pledges, hypnotic suggestion, religious influences and the like, sometimes with success; and drugs have been lauded by physicians, and secret nostrums by quacks, to accomplish the same end, sometimes also with success, though not so much through the merit of being an antidote to the desire for drink, as by virtue of the support by faith or suggestion given the weak will of the patient.

On the other hand, to make alcohol unattainable, the law has been invoked to regulate liquor-selling in general, to prevent its sale to drunkards, to imprison habitués, or to commit them to inebriate institutions for a definite length of time. All of these means have been successful in individual instances. But no drug has been found that is always equal to destroying the desire, and the laws are inadequate as regards regulation of the liquor traffic and the isolation of the drunkard from his ruling demon. Sequestration in a penitentiary is limited by the law, and the writ of habeas corpus has been the evil genius of special institutions for inebriates. Many are committed to insane asylums, but after a few weeks of rest and treatment, the debauch is recovered from, and not being insane, the asylum has no longer the power to detain them. So they come and go several times in the year with the regularity of the seasons. The rich try the inebriates' homes, and the poor are condemned to the penitentiaries. They are "repeaters." Think of being brought up for the two hundred and forty-sixth time before a police court for drunkenness; yet this has happened, and the defendant was a woman!

In the cases that generally present themselves to us, commitment is as a rule the last resort. We try moral suasion, occasionally hypnotism, and we make usually half-hearted attempts at treatment by drugs. We send them on long sea voyages on sailing vessels containing no liquor; we try the watchful care of a companion or nurse. Sometimes these means are effectual, generally not. The despairing friends after a time resort to the advertising quacks. Their remedies are no more efficient than those already in our hand, but it must be confessed that they often take more pains with each individual case than we do. Some of the advertised inebriety cures seem to be not only swindles, but cruel and criminal swindles. Several years ago the chemist of the Massachusetts State Board of Health analyzed some of these so-called cures for inebriety in order to ascertain how much alcohol they contained. The analyses published were as follows:²

Scotch oats essence.	contained 35 per cent. alcohol.
The "Best" tonic.	" 7.65 " " "
Carter's Physical Extract	" 22 " " "
Hoofland's German Tonic	" 29.3 " " "
Hop Tonic.	" 7 " " "
Howe's Arabian Tonic	" 13.2 " " "
Jackson's Golden Seal Tonic	" 19.6 " " "
Liebig Co's Cocoa Beef Tonic	" 23.2 " " "
Mensman's Peptonized Beef Tonic	" 16.5 " " "
Parker's Tonic	" 41.6 " " "
Schenck's Seaweed Tonic	" 19.5 " " "

¹ Hydrotherapy in Nervous and Mental Diseases, by Frederiek Petersen, M.D., Amer. Jour. Med. Sciences, February, 1893.

² Medical Register, July, 1888.

The so-called gold cure of Keeley, upon analysis, was found to contain no gold at all, but in each teaspoonful about $\frac{1}{2}$ of a grain of muriate of ammonia, $\frac{1}{8}$ of a grain of aloin, and 45 minims of compound tincture of cinchona. His hypodermic injection was ascertained to be composed of sulphate of strychnia, atropia, and boracic acid. The Keeley cure while it has been doubtless effectual in curing many cases of inebriety, has not made use of any drug not long ago tried by physicians all over the world. One of the advantages of this much lauded method is undoubtedly the effects of repeated suggestion. We have not been in the habit of paying that particular attention to inebriates that is necessary; we are too prone to dismiss such a case with a mere prescription and some good advice. I may be pardoned for citing an instance of the value of continuous attention. A young man of wealth was apparently a confirmed inebriate. Everything had been done for him on ordinary lines that could be done—drugs, moral influence, change of scene and occupation, the dismissal of his boon companions. I found a teetotal sailing vessel and sent him to the South Seas and China, a nine months' voyage without a drink. He came back robust, hopeful, took to drink at once and had incipient delirium tremens in a few days at a hotel. Before sending him to an inebriate institution for which I had made arrangements, I decided to give him one more trial. An occupation was found for him in a down-town office, and he was put upon the strychnine treatment, but was made to report daily at my office at a certain hour. This he did for a year. He has not tasted a drop for three years, and is married, prosperous and happy. I believe the continued attention and suggestion of the daily visits to my office were the remedial agents in his case, the strychnine merely acting as a prop to his nervous system as he was passing through the ordeal of deprivation of his wonted stimulant. Since then I have had several other cases. Hypnotism I have tried once or twice with considerable success. The treatment I should outline for the removal of the habit, and which I have found often very efficacious is briefly as follows:

1. The hypodermic injection of nitrate or strychnia in the doses already given, at least twice daily, more frequently if possible, and always by the physician himself. The moral influence and personality of the physician are of the greatest importance. By this frequent contact of physician and patient the effort and attention of the inebriate are kept continually at their highest pitch.

2. A diet of milk, eggs and vegetable foods should be enforced, meats being allowed but once daily.

3. Regular occupation, regular hours, and the avoidance of the society of fast companions must be insisted upon.

4. There is a certain class of patients to whom a substitute for a dram of liquor is at times imperative; when the desire comes on it must be satisfied. The substitute must be immediately at hand. With some of these, a combination of strychnia and fluid extract of cinchona (gr. $\frac{1}{2}$ to dr. j) taken with a glass of water, works very well. It is not always convenient however to carry a bottle in the pocket so I am at times in the habit of prescribing powders composed of from twenty to forty grains of red cinchona bark, half a grain of capsicum, and three grains of powdered nux vomica, to be taken with a glass of water when required.

As I have already stated, the Keeley cure depends largely upon suggestion for its results. It has had many successes, but of course also many failures, which latter are seldom published to the world. I have had four Keeley failures under observation. One is now insane with complications of hepatic cirrhosis and chronic gastric catarrh, and their sequelæ. He will not live long. The second is also insane. The third is under treatment with me. The fourth has been apparently cured in a sanitarium for inebriates, and has had no liquor for over a year.

There is a multitude of cases in which no treatment yet devised avails to check the alcoholic propensity, and in these the only alternative is to put them out of the reach of alcohol. How difficult this is to accomplish is well known to us all. Commitment for three to six months, which is the longest period permissible in all the institutions I know of in this country, is merely temporizing. It should be commitment for one to two years or even more. It is a fact that the nervous system and the heart and other organs do not recover their normal equilibrium in less than two years after prolonged alcoholism, and sometimes even four to six years are needed to reestablish healthy functions. Recently a step in the right direction has been taken by an institution in this city. For some five years, I have been the attending physician of the House of Mercy, which is in charge of the Sisters of St. Mary, of the Episcopal church. When they removed from the foot of West Eighty-sixth street to new buildings at Inwood, I induced them to form a department for inebriate women in the new quarters. The Sisters became interested in the project and the trustees have had a bill passed by the New York Legislature which is quite unique in this country. This department of the House of Mercy is called the St. Saviour's Sanatorium. It is empowered to receive women inebriates either by voluntary or legal commitment. In the latter case two physicians are required to make out certificates, and upon these a judge commits the patient for a year. Before the expiration of the year, she may be recommitted if it is deemed expedient for another year. Hence, patients may be detained here for two years. This feature of extended commitment for a long period marks a new epoch in the history of such establishments. St. Saviour's Sanatorium is beautifully situated on the Hudson river in the upper part of New York City. The rooms and parlors are cheerful, pleasant and inviting. Out-of-door exercise and drives, as well as in-door employment, and the companionship of the Sisters and lady visitors are features of the treatment. Thus far there are accommodations for but sixteen patients, and these are selected from the refined and cultured classes, the institution being too small for the accommodation of all classes of female inebriates, even if it were possible or desirable to mingle people occupying different moral and intellectual stations in life.

There is also in this city a somewhat similar institution for male inebriates, the New York Christian Home, where religious influence is the chief remedial agent. I am convinced of the great usefulness of such influence in many cases.

One of the great drawbacks to all homes of this kind is the *tedium vite* from which patients are apt to suffer; there is not sufficient employment or recreation; the routine and monotony become irksome.

If I were to suggest an ideal means of dealing with inebriates it would be the establishment of a little world in which alcohol had no place, but in which life with its various occupations, domestic arrangements, and amusements went on exactly the same. It would in fact be a colonization scheme, such as has proved so valuable in the case of epileptics and of the insane, only much more extensive and much more feasible. The problem involved is merely the exclusion of alcohol from all part in the colony's affairs. It is true that this could not be accomplished in any region open to ordinary traffic, travel, and communication; even a Chinese wall built around such a colony would not protect it from the invasion of its enemy; it would find some means to percolate through. But I can imagine some Temperance Island so far removed from the main land as not to be accessible to small boats, with only one harbor, five to ten or more miles in diameter, amenable to the laws of the United States, the property of a corporation of practical philanthropists, where all boats and baggage and merchandise would be thoroughly quarantined against the introduction of alcohol as if it were a comma bacillus, or the microbe of the Black Death. Here would be villages and industries, manufactures and arts, the commoners and the gentry, living in business prosperity and domestic happiness. Thither the drunkard would repair with his family, and obtaining a position, support himself and them, and lead a useful life as if such a thing as inebriety never existed. A majority of inebriates would immigrate there of their own accord, but certain ones would need commitment by law for three years. Such commitment, however, would be no hardship, for the rights of voting, of citizenship, the solace of society, the pleasure of following one's trade or calling, of earning a livelihood, and of living with one's family would make existence not only tolerable but blessed. The realization of such a project is not an "iridescent dream." It is quite within the bounds of feasibility. A small additional tax upon spirits and spirit-venders would be sufficient to acquire some Nantucket and consecrate it to this purpose.

201 W. 54th Street, New York.

A CASE OF SUFFOCATIVE LARYNGO-TRACHEITIS, AND A METHOD OF IMMEDIATE RELIEF.

BY DR. EDWIN J. KUH,
OF CHICAGO, ILL.

In illustration of an additional indication for the method described in my article, "A Topical Treatment of Bronchitis," (*Philadelphia Medical News*, of March 11, 1893, and *Chicago Medical Recorder* of March, 1893,) I wish to describe the following case:

Mrs. L. L. attended a ball shortly after her return from a wedding trip to the South. The day following I found her suffering from what seemed to be an ordinary laryngo tracheitis. On the succeeding morning I was again called and found the conditions greatly changed. She had been awake all night suffering from an attack of "croup." As this was to her a familiar reminiscence from childhood, she was more amused at her sudden rejuvenation, than alarmed at her distress.

I found her with accelerated and strident respira-

tion, and cyanotic face. There was a gurgling sound of advancing and receding mucus in the wind-pipe. Occasionally the mucus would become so lodged as to suppress respiration altogether; she would then struggle violently to regain her breath. Temperature 101°.

I found the pharynx almost normal. Aditus ad laryngem moderately swollen and congested. The glottis covered with a sticky, yellow-greenish secretion. Upon inspiration, the tracheal mucosa presented itself swelled and with engorged capillaries; thick bands of very tenacious green discharge stretched across the trachea, almost blocking it up.

During the previous night the patient had vomited several times. I again forced vomiting, and in various ways succeeded in giving transitory relief; the secretions would, however, gather again. During the forty minutes consumed in these observations, the patient had several attacks of suffocation, from each of which it seemed more difficult for her to regain herself.

I then decided, in view of my experience in the rapid elimination of bronchial secretions (see article quoted above) to apply the deep spray. The success of its application was as rapid and striking as we see it in intubation for laryngeal stenosis. Each inhalation of the spray scooped out the tenacious, cohesive discharge, which was so adherent to the mucous membrane as to carry away admixtures of blood with each expectoration.

The patient was then put back to bed, entirely relieved of dyspnea, and sank into an exhausted sleep. Her recovery took place without further incident, except that the sputa remained bloody for a few days following.

3125 Michigan Ave.

BRONCHOCELE, THYROIDECTOMY.

Read before the St. Louis Medical Society.

BY L. H. LAIDLEY, M.D.,

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Miss W., aged twenty-two years, school teacher, of healthy parentage, was born and lived in the southeastern part of Missouri. At the age of thirteen had an enlargement make its appearance over the thyroid gland, which gradually enlarged until two years ago, when it began to grow rapidly. The form of development was the usual larger right lobe the size of an orange, the left being one-fourth its size. Immediately above the right another smaller enlargement was observed, which in all probability was an auxiliary thyroid gland undergoing degeneration. The physical symptoms were rapid increase in loss of strength, being unable to go up stairs without great difficulty, loss of flesh, palpitation of the heart with mental disturbances. Her general appearance had changed so rapidly as to alarm her friends. She was anemic, with the usual anxious and greatly distressed appearance. Her eyes were slightly protruding, which may have been due to the nervous impressions arising from the disturbance of the heart's action and increased rapidity in breathing; her voice was normal. A measurement over the most prominent part of the tumor measured fourteen and three-fourths inches. It was movable and would rise and fall in the act of deglutition. It was not adherent to the overlapping skin, and had no attachment to the

clavicle or jaw. It was covered with prominent veins; upon auscultation the peculiar blowing sound of this disease was very noticeable. The lungs and heart were normal except in rapidity of breathing and heart-beat. All the organs of the abdomen were normal. After consultation with Drs. Dalton and Outten, who fully concurred in my diagnosis that we had a fibrous bronchocele producing the usual manifestations, which was progressing so rapidly as to demand an immediate operation, on the 27th of February the patient was placed under the influence of chloroform, and an incision four inches in length was made over the greater prominence of the right lobe of the tumor. The superficial structures were cut through carefully, cutting one of the sterno-hyoid muscles in order to expose it completely. The tumor was then carefully enucleated in all its attachments, exposing a broad base which was transfixed by a strong ligature, tied off and cut. The amount of hæmorrhage following the operation was very slight, not more than half an ounce of blood being lost. The wound was cleansed and the external opening closed with silkworm thread. The left lobe and the auxiliary lobe were allowed to remain. The patient had a rapid and uninterrupted recovery. On the seventh day a slight bulging over the tumor in its most dependent part was noticed. It was opened and an ounce of dark blood evacuated, after which the wound was cleansed and union was completed in a few days. One month after the operation the measurements around the neck were twelve and one-half inches, showing a decrease of two and one-fourth inches in circumference. She was greatly improved in health; the action of the heart was greatly improved and the breathing was about normal. The eyes appeared more natural, and she was able to ascend stairs with perfect ease. No change in her voice was noticeable. A microscopic examination of the tumor showed it to be of the fibrous form of bronchocele.

From the literature of this subject I formulate the following conclusions: That in the treatment of this form of bronchocele it belongs to the domain of surgery; that electricity has no influence in its removal, likewise medicines are inert; that the operation as a rule can be safely made. It was formerly practiced with extreme rarity because of the difficulties to be encountered. The two principal dangers to be overcome as the result of this operation, namely: tetany and cachexia strumipriva, can be avoided by the removal of only a part of the tumor, which has been demonstrated by the experiments of Bardeleben, Horsley and others. This subject is receiving attention due it, especially from an operative standpoint. The subject of how much influence this disease and removal of the thyroid gland has in producing the above form of affection is an unsettled question in physiology, alike of interest to the pathologist and operative surgeon. Can we not hope that some researches in physiology will determine the theories now held beyond the possibility of a doubt?

3538 Washington Ave.

MIGRAINE may be relieved, Lucking says, with a pill, twice daily for some time, consisting of Indian hemp one-sixth grain, phosphide of zinc one-tenth grain, and arsenic one-thirtieth grain. The severity of the attack may be effectually diminished with liquor trinitrinæ in minim doses two or three times daily.—*The Clinical Journal*.

SOCIETY PROCEEDINGS.

Gynecological Society of Boston.

Regular Meeting held March 9, 1893.

THE PRESIDENT, DR. J. C. IRISH, IN THE CHAIR.

Pathological Specimens.—Dr. G. Ryder showed two dermoid cysts that had caused trouble for three years and finally necessitated removal. The growth was in two distinct masses, one consisting of a single large cyst, the other multilocular. One was situated in the median line, the other, in left ovarian region. The right ovary could not be determined, and was probably represented by the median growth. The contents of the tumors consisted of hair, sebaceous material, and one tooth.

Remarks.—Dr. Irish said it was rare to find both ovaries degenerated into dermoid cysts, and that according to Tait's theory, the condition was congenital, and represented twins, one developing, and the other, after a brief period of growth undergoing retrogressive degeneration, and existing at the expense of the former. If this theory is true, the present case must represent triplets.

New Instruments.—Dr. Jones exhibited a modification of the Keeley pad, consisting of a short crescent shaped air cushion, with the usual apron. It was specially designed for operating in the perineal region.

Dr. G. Ryder, read a paper entitled

VENTRAL FIXATION OF THE UTERUS.

In writing this paper the author compares the relative value of ventral fixation and Alexander's operation, because the former operation seems to have been lost sight of by many advocates of the latter. Koeberle, in 1869, after removing an ovary in a bad case of retroflexion, sewed the uterus to the abdominal wall, and was probably the first to perform ventral fixation in this manner. Soon after this, Sims, Schroeder, Tait, and others, did the operation under similar circumstances, but it was not until within a few years that Olshausen proposed this operation, and operated for the treatment of retro-displacements of the uterus *per se*. The operation at the present time has become adopted by a large number of prominent operators, and many prefer it in all cases to the Alexander operation.

In Alexander's operation it is often very difficult to find the ligament, and after vain search the operation must be abandoned for ventral fixation. The ligaments may be so small that they will not stand the necessary tension for shortening, and the adhesions of the uterus are frequently so great that sufficient tension to draw up the uterus and stretch these adhesions cannot be produced without danger of rupturing the normal round ligament. In drawing the uterus up by the round ligaments, vascular adhesions hidden from view may be torn, and give rise to hæmorrhage which cannot be immediately detected, and results in pelvic hæmatocele. It is often necessary to open the canal of Nuck in order to find the round ligament, and this procedure must be considered attended with nearly as much risk of life as opening the abdominal cavity by a median incision.

In the Alexander operation the uterine adhesions are not destroyed but merely stretched, and retain a degree of traction which tends ultimately to bring the uterus back into the retro-position. The exaggerated anterior position of the uterus after Alexander's operation is lower in the pelvis than after the operation by ventral fixation, causes more pressure on the bladder, and often produces vesical tenesmus with burning, stinging pain. Winckel's objection to Alexander's operation is that the chief cause of the retro-displacements, the relaxation of the *retractores* (vaginal ligaments) is not corrected. From these facts it is obvious

that Alexander's operation is limited to cases of retro-displacements that are easily reduced and without adhesions. in subjects possessing a round ligament of normal dimensions, conditions which are not easily determined before the operation.

The advantages of ventral fixation over the Alexander method are, adhesions can be overcome under direct inspection, and the danger of hæmatocele prevented; the uterus can surely be brought up and maintained in the antverted position; the vaginal ligaments are tightened, depleted, and their tonicity rapidly restored; on account of the higher position of the uterus assumed in this method there is more room for the distention of the bladder, and there is no complaint of burning, stinging pains, or dragging sensations. The objection to opening the abdominal cavity is to-day almost nothing, and although both operations have a rate of mortality it is very low, and there is no preference on this account of one operation over the other.

When pregnancy occurs after either operation there is little danger of abortion, much less than in the displaced condition of the uterus; normal labor usually occurs at full term, and the subsequent health of the patient is good. There seems to be no difference in the value of these operations in this respect. Krug has operated successfully nearly fifty times; three of his patients afterwards became pregnant, two were delivered at full term, and the other is doing well.

The writer has operated six times with perfect success. In none of these cases has there been any rectal or bladder symptoms afterwards, and in all there has been considerable diminution in the size of the uterus, and the sense of weight has been replaced by one of lightness and general well being. The patients have been free from menstrual disorders, and were able to sit up at the end of three weeks with one exception.

Kangaroo tendon is recommended for suture material because it can be buried, lasts a long time in the tissues, and causes no trouble. The writer passes his sutures on both sides, through the fundus of the uterus, including a part of the broad ligaments, and the peritoneum, fascia, and muscles forming a part of the abdominal wall.

Discussion.

Dr. G. W. Jones prefers Newman's operation for shortening the round ligaments, which differs from the usual method in that the canal of Nuck is first opened; this makes it easy, as a rule, to find the round ligament, and admits one to exert, in a direct line, the traction on the ligament necessary for drawing up the uterus.

Dr. W. S. Brown: Alexander's operation often fails because the round ligament is only rudimentary.

Dr. A. H. Tuttle: The value of kangaroo tendon cannot be over estimated in such work as ventral fixation of the uterus where it is necessary, not only to get a plastic exudate which will furnish material for the production of the desired adhesions, but to maintain this exudate so that it will not become absorbed, but will undergo connective tissue metamorphosis. This requires about three months time. In one instance he had dissected up an old wound and extracted the tendon in a softened condition, six months after it was first buried, from a strong mesh-work of fully organized connective tissue, and in another instance it was extracted three months after it was buried, still in a strong condition. In both these instances there were no symptoms whatever to indicate irritation of the parts.

Dr. J. C. Irish: Had formed an unfavorable impression of Alexander's operation. It was useless in prolapse, and was limited in usefulness to retro-displacements without adhesions where there was a well developed ligament, cases

which can usually be greatly relieved by pessaries and other supports. As opening the abdomen is becoming less dangerous, ventro-fixation is the operation of the future.

Dr. A. K. Miller, read a paper entitled

MONSTROSITIES.

Wolf was the first to show that primitively the ovule does not contain the embryo. Saint-Hilaire and later writers believe that all fecundated ovules are identical at the outset and that some external cause, by interfering with their development, may determine the appearance of anomalies. Dareste found, by experimenting on the eggs of the chick, that physical external causes could modify the evolution of the fecundated germ, and by these means he could produce various types of monstrosities. Heredity apparently is in casual relation to the production of monstrosities, and must exert its influence on the ovum before fecundation. Maternal impression is believed by the writer to be a cause in the production of monsters. Since similar anomalies are met with in the lower animals, one writer considers that maternal impressions are very problematical. The writer found that by hatching the double-yolked eggs of the chick, curious specimens of monsters were produced, such as one chick with four feet, four wings, and one head. Monsters are divided by Saint-Hilaire into simple and composite according as the anomaly consists of the elements of one or more individuals.

Case.—Mrs. A., para, 42 years old, menstruation ceased August 17, and symptoms of pregnancy appeared September 1. On the 6th of the following May, symptoms appeared which seemed to indicate that the patient was about to be confined, but the os uteri was not dilated. On the 9th, there was a slight discharge and the os was somewhat dilated. On the 18th, pains set in and lasted a few hours. Recurrent symptoms of labor lasting a few hours occurred about every seven days, in the meanwhile the patient kept about performing her household duties as usual. The os became dilated to the size of a silver dollar and when the fetus was touched by the inserted finger it would give a spring, or leap upwards. This state of affairs persisted for three months, when, August 21, the patient was delivered of a female child that weighed twelve and one-half pounds, measured twenty-two inches around the shoulders, and twenty inches under the arms; the finger and toe nails were very long; the nose large and flattened; mouth open, the eyes four in number, two in the normal position, large and projecting, the other two situated two inches higher and at the base of a tumor composed of blood vessels and isolated portions of the brain. There was no vault to the cranium, or forehead.

When the patient was about six weeks encephalic, her insane father-in-law came into her room while she was asleep and held a lighted candle over her, causing her to awake in great fright and with mental disturbance.

The period of gestation was one year and four days.

Three years after the beginning of the above described pregnancy, August 8, 1889, the patient was again seen with symptoms of pregnancy, dating from her last menstruation of July 1. In the meantime she had enjoyed good health. Feb. 8, she had a profuse discharge of reddish brown color, amounting to several gallons, that came on very suddenly, without pain. A dead fetus was removed which somewhat resembled the former monster except that it has but two eyes and the intestines were confined in a sac outside of the abdominal cavity. There was no cause for maternal impression.

Discussion.

Dr. B. W. Brown:—In some cases maternal impression seems to be in causal relation to the production of monstrosities.

Dr. Burt.—In a case of pregnancy near the menopause, the product resembled a jelly fish as much as anything in appearance.

Dr. Stevens:—When in Paris saw a man with three eyes.

Dr. Jones had seen one case of anomaly in a negro.

Dr. Tuttle:—In studies of the embryology of the invertebrata, he found monsters very common, and believes the lower the development of an animal, the more frequent will be found anomalies, an argument against the theory of maternal impression.

Dr. Irish:—In one family where the father has six toes on one foot, both his children, all he ever had, were born with six toes.

ALBERT H. TUTTLE, *Secretary*.

Cambridge, Mass.

American Electro-Therapeutic Association.

Second Annual Meeting, held in New York, October 4, 5 and 6, 1892.

WILLIAM J. MORTON, M.D., *President*.

THIRD DAY, OCTOBER 6—MORNING SESSION.

(Continued from page 396.)

Dr. Dickson asked if any of the members had found that in treating fibroids by means of a platinum sound internally, and with a current not exceeding 20 milliamperes, suppuration was produced. He asked this, because he had been accused of producing suppuration in this way. The patient was a small, frail woman with a large tumor, and the treatment was by Martin's method of acting successively on different portions of the endometrium. Antiseptic precautions were used, nevertheless there was a sudden and considerable rise of temperature. He had been accused of producing disintegration of the tumor, and of neglecting to provide free drainage from the cervix.

Dr. von Raitz said he formerly used currents of 70 or 80 milliamperes in the treatment of endometritis, and then he frequently met necrosis, pieces of tissue being discharged from the vagina.

Dr. Goelet said that when using punctures, caustic effects were produced, and therefore necrosis. He seldom found occasion to use currents higher than 100 milliamperes, and although Apostoli had been frequently credited with using very powerful currents, the speaker had noticed while at Apostoli's clinic, that the milliamperemeter he used did not register over 250 milliamperes, and 150 milliamperes was rarely exceeded.

Dr. Kellogg said if a metal surface of the electrode be brought in contact with the tissues, a current above 10 milliamperes would produce a slough; indeed, he believed that every method which was capable of causing absorption of a tumor owes its action to the setting up of necrosis, or of a circumscribed phlebitis, which cuts off the circulation in the tumor. Dr. Hutchinson's method was well worthy of trial because it avoided this necrotic action. Even the small currents used in epilation produce a visible anemia of the tissues, and it is probable that it is in this way that Dr. Hutchinson obtains his results. By covering the vaginal electrode to the depth of three-eighths of an inch with a mixture of gelatine and white lead, more powerful currents could be used without producing necrosis. Occasionally as a result of thinning of the uterine wall by an intramural fibroid, perforation of this wall will follow the gentle introduction of an electrode, and if absolute asepsis has not been secured, trouble will result.

Dr. Massey, in closing, said he had stated that in myomata, although the faradic current produces a contraction which may prove an important aid in the treatment, there is no permanent effect produced by this current. He was

glad that this point, as well as the statement that it is necessary to affect the nutritive supply of tumors, was well received by the members. He did not think, however, we need directly attack the blood vessels; possibly all that is necessary is to affect the nerve supply of the hilum of the tumor. He had employed Dr. Hutchinson's method of abdominal puncture, modifying it, however, by using stronger currents, and insulated Hagedorn needles, two and one-half inches long. The puncture was very easily made with this needle; its small size admitted of the use of a fused hard rubber insulation, and its shape allowed the puncture to close after the withdrawal of the needle. He had connected the negative pole with three or four such needles, and used a current of 300 milliamperes. His results had been good, but not so good as from very slight punctures down near the hilum of the tumor, although this latter situation is somewhat difficult of access. He wished to take exception to the use of the word "necrosis" in the sense in which it had been employed in this discussion. Necrosis occurs not infrequently in cases which have never been subjected to electrical treatment, or to operation; hence, it is unfair to assume that any untoward action following upon the use of electricity is necessarily the result of this treatment. Cauterization is produced, but there is usually no necrosis; necrosis is a vital process, cauterization, a chemical process, and if necrosis occurs, it must be in the adjoining tissues. It is because of the profound effect of the current on the adjacent tissues, that we should be careful not to make too frequent applications, otherwise necrosis may be produced.

THE PRESENT STATUS OF ELECTROLYSIS IN THE TREATMENT OF URETHRAL STRICTURES, WITH STATISTICS OF ONE HUNDRED CASES (THE THIRD SERIES).

By Robert Newman, M.D., 68 W. Thirty-sixth St., New York, Fellow American Electro-Therapeutic Association; Consulting Surgeon to Hackensack and Bayonne Hospitals; Consulting Physician to Home for Aged and Infirm, Yonkers; Honorary Member Ulster County Medical Society, etc.

As a further contribution to electrolysis in the successful treatment of urethral strictures, there is presented herewith the statistics of one hundred more cases, as a third series, making in all, with the two previously reported by the writer and published, three hundred cases.

There are no new developments to offer, but the results of the cases now presented confirm former statements that electrolysis, scientifically applied, is absolutely successful in the treatment of strictures of the urethra.

Electrolysis rests on fundamental laws of physics and chemistry so well established, that if applied accordingly, failures in the treatment are impossible. In that sense, it is reasserted that electrolysis *per se* cannot fail, while it is admitted that ultimate success in a certain case may be prevented in different ways, namely: unforeseen complications, imperfect instruments, negligence of the operator, wrong diagnosis, and the actions of the patient. Failures consequent upon the unskilful manipulation on the part of those who are unqualified, are only the natural effects of causes, and as there exist so many such causes, it is a wonder that more failures have not been recorded. The writer has practiced this method of electrolysis successfully for over twenty-three years, and has already described the *modus operandi* and instruments, and laid down rules minutely for the operation. It is unnecessary, therefore, to recapitulate them again. The leading features for the operation being that the constant current of galvanism only must be used, always applying the negative pole to the seat of the stricture, using only weak currents of from three to five milliamperes, sances lasting not more than from five to ten minutes, with intervals of about one week or longer. Only one instrument should be used at each sance, and the operation ought never

to be attempted while the mucous membrane is in a state of inflammation. The patient's strength should not be overtaxed, and gentleness prevail throughout the whole operation. As a matter of course, only the best instruments should be selected and used.

The advantages of electrolysis over other operations are confirmed by the new cases now presented, namely:

1. That it is applicable to all strictures in any part of the urethra.
2. That it will pass and enlarge any stricture when other instruments or the skill of the surgeon fail.
3. That it causes no pain or inconvenience.
4. It is devoid of danger.
5. It is not followed by hæmorrhage, fever, or any other unpleasant consequences.
6. It relieves at once.
7. The patient is not prevented from attending to his business while under treatment, and is without restraint; and
8. No relapse takes place.

The electrolytic method may not for some time become so popular that every general practitioner will use it, since it needs, beyond skilfulness, great patience, gentle touch, good instruments, and electric apparatus in perfect order, also the qualifications of a master electrician and genito-urinary expert.

Electricity, and electrolysis in particular, have had many skeptics and adversaries, but who now, in this progressive age of science and civilization, have dwindled down to a few unreasoning ones, while the converts are legion; and the status has changed to a better appreciation of the method, and is acknowledged as a success, so that scarcely any opposition or doubt exists. It seems that the enemies of the system are reduced almost to a single individual, who has resorted to such doubtful and dishonest methods in decrying electrolysis, that it assumes the appearance of personal malice, rather than a truthful and dignified scientific *résumé*. One of these ingenious methods is to throw doubt upon documentary evidence proving the success of electrolysis. In the year 1885 a physician made a written statement of a case which was published. With apparent design, after the death of this physician, and after a lapse of about four years from the date of the letter, a polite note is written to this physician by a critical adversary, asking him the date of the treatment, etc. This polite note, as was expected, was as politely returned by the postmaster, who evidently declined to assume the responsibility of forwarding it to its destination, and the investigator closed his report with the triumphant words, "the inference is obvious." At another time he reports (as his duty as an editor required), some cases treated successfully by electrolysis by an eminent physician in London, ending with the exclamation, "the burning question again!" Such insinuations and misrepresentations show very clearly on their face, without any "obvious inferences," the unworthy motives of an unsuccessful operator who, as an editor, while reporting successful operations by electrolysis, closes such reports with a captious, seemingly intended to be a skeptical and misleading criticism.

But while we have still to contend with this exceptional case of wilful or ignorant misrepresentations, it is a pleasure that the cases which are herewith submitted confirm those already reported, and establish beyond doubt the success of the treatment. This success, summarily, is proved by:

1. Reports of thousands of successful cases by different trustworthy writers, to which the writer has contributed and published three hundred.

2. Patients who have during many years been observed, re-examined, and can bear testimony of permanent results.

3. Acknowledgments by the medical press, journals and modern text-books; and

4. Documentary evidence, which has never been concealed from those desiring an honest examination, and is always open to inspection, and can be substantiated by reference to most of the patients themselves, or to their family physician or friends.

It is a pleasure to re-affirm all previous statements heretofore made, despite adverse criticism, and to welcome an investigation of stubborn facts which do not yield to "obvious inferences," but whose convincing truth is established by honest, careful and judicious investigation.

SUMMARY.

These 100 cases, numbered 201 to 300, make 300 cases published by the writer.

In the selection of each series is a little difference. *The first 100 cases* were reported to the American Medical Association in Cleveland, 1883.¹

The principal feature was, to show that no relapse of the malady occurred after the stricture had been cured by means of the electrolysis. As the meaning of the word "cure" may be interpreted by some differently than by others, it will be more explicit by defining the meaning, viz.: no contraction of the calibre of the urethra took place, and after the patient had been dismissed as well, to his own satisfaction, the same number of sound or catheter which was used the last time in treatment would easily pass, after a year or even many years. These 100 cases were naturally not consecutive cases, but collected from consecutive cases for the purpose, and had to meet the following conditions:

1. The patients being under treatment regularly, and for a reasonable time; 2. that they were to be discharged cured, or at least so improved that the patients were content with the result, and did not wish any further treatment or improvement; 3. they were to be cases that were heard of afterwards by reliable information; mostly by re-examination by the family physician or by myself. Some of these patients came repeatedly for such a re-examination.

The proof of no relapse was, that the same number of sound was used in the re-examination, which passed the last time at the close of the treatment, i.e., if the calibre of the urethra was enlarged to a number 26 French, the same number 26 passed again after respectively three to eleven years.

The second 100 cases were selected in a different way. It consisted of the experience of a later period, the narrative of almost consecutive cases taken from my note book; relating all such cases, which have remained long enough under treatment to warrant a result, and in which the necessary information has been furnished and recorded: on the other side omitting cases, which have not been long enough under treatment, or only seen without treatment, and in which the record is sufficient. In this report I have on purpose omitted the word "cured," because there is a diversity of the meaning cure. The patients were dismissed or stopped treatment themselves, when they felt comfortable and well, had a calibre of the urethra which enabled them to void freely a good large stream, and if wanted could exercise a sexual intercourse.

The result of such treatment is marked under the heading "sequel and calibre of the urethra when discharged." The number of electrodes used, is stated according to the French scale, but these (Newman's) electrodes differ somewhat from the usual steel sounds sold by instrument makers. The usual steel sound tapers, so that the end which is used in entering the meatus is from two to nine numbers smaller than the stem of the instrument, while my electrodes have

¹ Journal American Medical Association, April 25, 1886; New England Medical Monthly, August, 1885.

² Journal of Amer. Med. Assoc., Sept. 24, 1887.

SYNOPSIS OF THE THIRD HUNDRED CASES OF STRICTURE OF THE URETHRA TREATED BY ELECTROLYSIS.

TABULAR STATISTICS.

Number.	Patients' Initials, Residence, Date of First Visit.	Age—Years.	Cause, Duration, Complications of Stricture.	No. of Strictures found.	Distance from Meatus. Inches.	Size of Stricture. Fr. Scale—No. How many Sources.	Treatment.		Sequel and Calibre of Urethra when Discharged. French Scale No.	Time of Last Heard From After Treatment.	Time of Observation After Discharge Without Relapse.
							Average Intervals—Days.	Time of.			
201	M. G. F., N. Y. C., 1887, March 23.	49	Continued urethritis for 7 years; impotence	4	2, 4, 5, 6	12 15	10	5 mos.	Urethra enlarged to No. 28	1890, March 27	3 years.
202	E. G. B., Albany, 1887, March 26.	55	Strictures for 20 yrs. Prostate enlarged.	3	2 $\frac{1}{2}$, 4 $\frac{1}{2}$, 6 $\frac{1}{2}$	18 8	14	4 mos.	Urethra enlarged to No. 32	1892, March 30	5 years.
203	J. W. R., Oregon, 1887, March 31.	35	Crethritis; 15 years; spinal irritation	3	3, 4 $\frac{1}{2}$, 6 $\frac{1}{2}$	11 4	5	4 wks.	Improved to No. 23; left for home	1888, March	1 year.
204	F. S. E., N. Y., 1887, May	32	Crethritis; 3 years; bungling electrolysis; peri-urethral abscess	3	2, 4, 6	6 7	8	2 mos.	Improved to No. 17; very little progress. Withdrawn	N. B.—Former ingenious electric treatment has injured the case.	
205	C. C. W., Chicago, 1887, June 9	48	Crethritis, character unknown, 8 yrs.	3	5, 6, 7	18 2	3	op'd while in Chicago	In two sittings enlarged to No. 23	1890, June; through family physician	3 years.
206	S. H. H., N. Y. C., 1887, July	20	Prolonged urethritis, 2 yrs. Urethrotomy	2	3, 5 $\frac{1}{2}$	18 20	8	5 mos.	Urethra enlarged to No. 32, Fr.	Re-examined Jan. 8, '89; well	2 years.
207	W. G. C., Ulster Co., 1887, July 27	23	Strong injection, 3 years	4	4, 5, 6, 7	0 15	12	6 mos.	Urethra enlarged to No. 26, Fr.	Heard from him and family physician; of meatus is well	4 years.
208	W. M. H., St. Louis, 1887, August 19	32	Long continued urethritis; gleet; 4 years	2	3, 4	17 7	9	2 mos.	Calibre enlarged to No. 28, Fr.	Re-examined with well	1 year.
209	G. R. B., N. Y. C., 1887, Aug. 24	40	Gleet, 3 years	3	3, 4, 6 $\frac{1}{2}$	15 8	8	2 mos.	Enlarged to 26, limit of meatus. Well	June, '92, well; no relapse	5 years.
210	R. S. S., New Haven, 1887, Aug. 29	24	One year, prolonged urethritis	3	3, 5, 6	17 6	14	3 mos.	Enlarged to 28, normal calibre	Well, Sept. 5, '88	1 year.
211	M. H. M., New Haven, 1887, Aug. 29	23	Crethritis, gleet; 2 years	2	5, 7	18 4	12	6 wks.	Enlarged to No. 25, Fr., size of meatus. Married and well	Re-examined Oct. 16, '88; well	1 year.
212	E. S. G., Tenn., 1887, March 27	42	Prolonged urethritis, 10 yrs.; prostatitis, cystitis	2	3, 5	23 8	10	3 mos.	No. 27 Fr. Well	Re-examined Aug. 11, '91; well	5 years.
213	W. D. C., N. Y. C., 1887, October 2	53	Inflammation, traumatism, bladder over-distended; 5 years	2	5, 7	4 5	12	2 mos.	Improved; 14; gone west	Oct. 23, '89; written that he felt great relief	2 years.
214	J. C., New Orleans, 1887, Oct. 5	27	Strong injection, urethrotomy, 2 yrs.	1	7	0 10	8	2 $\frac{1}{2}$ mos.	Enlarged to 26; gone to N. Orleans; well	Not heard from.	
215	J. M. D., Indianapolis, 1887, Oct. 19	60	Not known; enlarged prostate, 4 years.	1	5	20 3	4	2 wks.	Improved to 26; content and gone home	Not heard from.	
216	D. T. H., Newark, 1886, Aug. 1	50	Balanitis; cicatrix after porotomy, 3 months	1	Meatus	18 5	7	1 mo.	No. 27; well	February, '92; re-examined; well	6 years.
217	H. T., Brooklyn, 1887, Oct. 30	22	Strong injection; druggist's mistake; traumatism; 6 mos.	3	2, 4, 6	8 25	10	9 mos.	No. 21; improved; temporary; failure	1890, relapse	Failure.
218	T. B., Charleston, 1887, Nov. 15	24	Urethritis; urethrotomy; 6 years	2	6, 7	20 4	7	1 mo.	No. 28; well	'92, physician re-examined; port-well	5 years.
219	R. W. G., Bloomfield, N. J., 1888, Jan. 30	46	Strumous inflammation; ulcers, 2 years	1	4	7 5	6	1 mo.	Imp'd, 20; Dr. Wile continued treatment	'92, saw patient; Dr. Wile reports well	4 years.
220	I. T. K., Blairsville, Pa., 1887, Nov. 16	37	Urethritis prolonged; orchitis, 11 yrs.	1	4	17 6	7	1 $\frac{1}{2}$ mos.	Enlarged to 28; well	Not heard from.	
221	C. D. B., N. Y. C., 1887, Nov. 23	47	Gleet; 20 years	2	5, 6 $\frac{1}{2}$	12 7	8	2 mos.	Enlarged to 28; well	Not heard from.	
222	A. L. B., N. Y. C., 1887, Nov. 28	56	Traumatic rupture of urethra, 17 years	3	2 $\frac{1}{2}$, 5 $\frac{1}{2}$, 6 $\frac{1}{2}$	20 16	7	Irregular. 3 mos.	Enlarged to 28; well	Re-examined twice, Nov. '88	1 year.
223	J. B., Philadelphia, 1887, Dec. 14	35	Traumatic bungling electrolysis, 7 yrs.	1	7	0 13	Irregular. 4 mos.	Enlarged to 25; well	'90, by letter; reports well	21 $\frac{1}{2}$ years.	
224	R. J., Colchester, Conn., 1887, Dec. 14	50	Traumatic retention, cystitis, orchitis, 3 years	1	7	17 2	14	2 wks.	Imp'd to 20; could not come again	'88, July	6 months.
225	G. A. S., N. Y. C., 1887, Dec. 20	42	Gleet continuous for 2 years	2	3, 5	17 6	8	2 mos.	Enlarged to 28; well	'89, February 13; re-examined	1 year.
226	Dr. J. S. C., N. Y. C., 1888, Jan. 3	47	Inflammation, urethrotomy, 10 yrs.	2	3, 5	21 8	7	2 mos.	Enlarged to 32; well and married	Re-examined, '92	4 years.
227	A. D., Greenville, S. C., 1888, Feb. 3	49	Gleet, 2 urethrotomies, 10 yrs.	2	2 $\frac{1}{2}$, 5 $\frac{1}{2}$	21 5	Irregular. 3 mos.	Enlarged to 30	Re-examined, Mar. 14, '90	2 years.	
228	J. D., N. Y. C., 1888, Feb. 6	46	Gleet, retention, urethrotomy, 17 yrs.	2	4 $\frac{1}{2}$, 5 $\frac{1}{2}$	8 14	11	4 mos.	Improved to 27; patient was transferred and spirited away by a surgeon.	Re-examined, Oct. 4, '92	4 $\frac{1}{2}$ years.
229	F. S. B., Hackensack, N. J., 1888, Feb. 13	23	Crethritis, 1 year	1	5	17 6	14	3 mos.	Enlarged, 28; well	Re-examined, Oct. 4, '92	years.
230	J. G., Topeka, Kas., 1888, Feb. 27	36	Urethritis, 2 years	2	2 $\frac{1}{2}$, 5	18 2	8	1 wk.	Improved, 25	'89, March, No. 25	1 year.
231	R. L. C., N. Y. C., 1889, March 4	35	Strong injections, 5 years; nervous prostration and spasm	2	2 $\frac{1}{2}$, 6 $\frac{1}{2}$	9 12	Irregular. 4 mos.	Little improved to 17; patient absent himself	'89, intercurrent sickness; no material success.		
232	G. B. C., Montreal, 1888, March 30	51	Traumatism, prostatitis, cystitis. Urethrotomy, 7 yrs.	3	2 $\frac{1}{2}$, 3 $\frac{1}{4}$, 6 $\frac{1}{4}$	17 7	7	6 wks.	Enlarged to 21; well	'91, by family physician	3 years.
233	A. J. S., Brooklyn, 1888, April 2	60	Unknown; cystitis, prostatitis, 10 yrs.	1	3	20 5	7	1 mo.	Improv'd to 25; gone south	Not heard from.	
234	V. S. N., N. C., 1888, April 27	40	Traumatism, 10 yrs. Urethrotomy	3	2 $\frac{1}{2}$, 4 $\frac{1}{2}$, 5 $\frac{1}{2}$	15 8	6	1 $\frac{1}{2}$ mos.	Enlarged to 25; gone home	'91, by letter	3 years.
235	C. H. H., N. Y., 1888, April 30	41	Gleet, prolonged, 5 years	2	4, 5	11 6	6	1 mo.	Enlarged to 2 $\frac{1}{2}$; well	'82, September, re-examined	4 years.
236	T., N. Y. C., 1888, May 2	30	Gleet, spasm, 8 yrs.	2	3 $\frac{1}{2}$, 5	6 15	Irregular. 10	2 mos.	Enlarged to 28; well	'92, Jan.; re-examined; well; also '90 & '91	4 years.
237	C. S., N. Y. C., 1888, May 14	70	Inflammation, retention, enlarged prostate, 6 yrs.	2	4 $\frac{1}{2}$, 6 $\frac{1}{4}$	17 6	10	2 mos.	Enlarged to 26; capacity of meatus; well	Re-examined, Sept. 9, '89	1 $\frac{1}{2}$ years.
238	G. L., Florida, 1888, May 18	26	Urethritis, epididymitis, 1 $\frac{1}{2}$ years	2	4 $\frac{1}{2}$, 5 $\frac{1}{2}$	21 3	5	10 days	Enlarged to 28; gone home	Not heard from.	
239	Dr. E. H., Brooklyn, 1888, May 21	48	Gleet, 8 years	2	3 $\frac{1}{2}$, 5 $\frac{1}{4}$	18 6	10	2 mos.	Enlarged to 28; well	Life ins. phys. accepts and finds no stricture.	
240	J. T. M., N. Y. C., 1888, May 19	52	Gleet, 12 yrs. Urethrotomy	3	3 $\frac{1}{2}$, 5 $\frac{1}{4}$, 7 $\frac{1}{2}$	20 7	Irregular. 7	2 mos.	Enlarged to 25; well	'92, February, re-examined	4 years.
241	J. Z. A., Hackensack, 1888, May 26	21	Urethritis and inflammation, 9 mos.	2	3, 5	11 8	7	2 mos.	Enlarged to 25; capacity of meatus	Re-examined, May 20, '90	2 years.
242	W. A. M., Redbank, 1888, June 19	43	Strong injections, 20 years	2	3, 5	9 11	8	3 mos.	Enlarged to 25	Saw patient off on '92; is well	4 years.

SYNOPSIS OF THE THIRD HUNDRED CASES OF STRICTURE OF THE URETHRA TREATED BY ELECTROLYSIS.

TABULAR STATISTICS—CONTINUED.

Number.	Patients' Initials, Residence, Date of First Visit.	Age—Years.	Cause, Duration, Complications of Stricture.	No. of Strictures Found.	Distance from Meatus. Inches.	Size of Stricture, Fr. Scale—No.	Treatment.			Sequel and Callbre of Urethra when Discharged, French Scale No.	Last Heard From After Treatment.	Time of Observation After Discharge Without Relapse.
							How many Sessions.	Average Intervals—Days.	Time of.			
243	Dr. R. W., N. Y. C., 1888, July 21	31	Urethrotomy; no venereal disease; 1 year.	1	3½	21	2	2 mos . . .	2 mos . . .	No. 25 passed easy.	Saw patient often; is well	4 years.
244	M. B. M., City, 1888, July 35	45	Urethritis; 10 years.	1	3½	25	8	7	2 mos . . .	Enlarged to 30; is well	'89, July 19; re-examined	1 year.
245	E. B., N. Y. C., 1888, Aug. 14	23	Urethritis; 5 years.	4	1½, 4, 4½, 5½	11	7	7	2 mos . . .	Enlarged to 25 . . .	Heard from off and on	3 years.
246	J. H., Rahway, N. Y., 1888, Sept. 1	28	Urethritis; 2 years; urethral abscess; cystitis.	1	5	15	6	7	1½ mos . .	Enlarged to No. 28 .	Not heard from.	
247	A. C., N. Y. C., 1888, Nov. 3	34	Gleet, prolonged, 8 years.	1	4½	20	4	7	1 mo. . . .	Enlarged to 25; patient left content.	Not heard from.	
248	H. R. C., N. Y., 1888, Sept. 23	52	Inflammation; 30 years.	3	3, 5, 7	0	6	7	1½ mos . .	Much imp. to 24; patient feels too well.	Not heard from.	
249	T. M., N. Y. C., 1888, Sept. 25	26	Granular urethritis, gleet; 6 years.	1	large call bre.	Treated also per endoscope.	6	15	3 mos . . .	No. 27 passed size of meatus; is well . . .	'91, May, re-examined	2½ years.
250	L. B., N. Y. C., 1888, Oct. 11	36	9 years; urethrotomy.	1	3	25	6	15	3 mos . . .	No. 32 passed easy; is well	Re-examined, Feb. 20	2½ years.
251	Dr. A. W., Iowa, 1888, Oct. 30	37	Retention; cerebrospinal meningitis; 12 years.	1	6½	20	4	7	1 mo. . . .	No. 28 passed easy; is well	Not heard from.	
252	R. M. C., Texas, 1888, Nov. 10	52	Urethritis, gleet; 32 years; urethrotomy.	4	1½, 2¼, 4, 6½	21	6	10	2 mos . . .	Enlarged to No. 30; well; gone home . .	Re-examined, '90, May 14 . .	No. 2½ years.
253	F. S., N. Y. C., 1888, Nov. 28	24	Urethritis; strong injections; 1½ yrs.	2	1½, 5	11	7	Irregular.	4 mos . . .	Enlarged to No. 28; well	Re-examined, October	'89, 1 year.
254	H. J., Brooklyn, 1888, Dec. 16	26	Gleet; 1 year.	3	2¾, 4, 5½	6	Irreg. and in long intervals.	7	1 mo. . . .	Relapses in intervals; improv'd to 20 .	'90, August, seen by Dr. Waite	
255	K. B. M., Brooklyn, 1888, Dec. 22	39	Gleet; 16 years; urethrotomy.	1	5½	17	5	7	1 mo. . . .	Enlarged, No. 25 . .	Not heard from.	
256	J. H. H., Troy, 1888, Dec. 29	39	Gleet, 16 years; spasm of bladder.	2	2½, 5	13	7	7	1½ mos . .	Improved to 26. Meatus full capacity.	Not heard from.	
257	C. A. P., N. Y. C., 1889, Jan. 4	36	Urethritis, caustics; 7 months; cicatrix of meatus.	2	1, 5	6	5	6	1 mo. . . .	Imp. to 25; much as imp. to 25; meatus will permit .	Dr. McLaur reports him well, '92, Sept . .	3½ years.
258	G. P., West Indies, 1889, Jan. 15	33	Neglected inflammation; 3 years' congenital phymosis, with adhesions.	2	4, 6½	14	4	5	1 mo. . . .	Imp. to 23; patient content, and went to sea	'90, June, not worse . .	1 year.
259	J. W. S., Sprankles, Pa., 1889, Jan. 19	23	Gleet, orchitis; 4 years.	1	6	23	3	10	1 mo. . . .	Enlarged to No. 30; stricture cured . .	'91, March, by letter . .	2 years.
260	C. F. H., N. Y. C., 1889, Jan. 21	31	Gleet; caustics; 3 years.	1	3	20	6	Irregular.	3 mos . . .	Enlarged to 28; capacity of meatus .	Re-examined, Feb. 17, '90; well .	last 1 year.
261	W. E. N., City, 1889, Jan. 21	39	Gleet; urethrotomy; 9 years.	2	3, 6	8	7	8	2 mos . . .	Improved, No. 25 . .	Not heard from.	
262	A. C., City, 1889, Jan. 27	44	Cystitis, prostatitis; no venereal disease; 9 months.	3	2, 5, 3	20	6	12	2½ mos . .	Improved, No. 25 . .	'90, February	1 year.
263	A. C. B., N. Y. C., 1889, Feb. 3	27	Strong injection; 6 months.	1	5	13	6	7	1½ mos . .	Enlarged to No. 28 .	Re-examined, June 14; well . . .	'90, One and one-half years.
264	D. M. L., New Haven, 1889, Feb. 26	47	Not well known; 10 years.	1	6	20	4	7	1 mo. . . .	Enlarged to No. 25 .	Re-examined, Feb. 3 . .	3 years.
265	J. W. F., Savannah, 1889, March 2	33	Neglected inflammation, 15 yrs.	3	3, 5, 7	11	7	7	1½ mos . .	Enlarged to No. 28 .	Gone South; not heard from	
266	Dr. G. P. H., Galveston, 1889, March 2	36	Nervous disease; inflammation; 9 years.	1	3¾	20	4	5	1 mo. . . .	Enlarged to No. 28; utmost capacity of meatus .	Doctor wrote he had no relapse	1 year.
267	Dr. F. B. G., N. Y. C., 1889, March 13	44	Organic cartilaginous stricture; 24 years.	2	3, 5½	15, 0	16	8	4 mos . . .	Enlarged to No. 28; well	Dr. says he can pass 28 easy; Jun., '90, well .	1 year.
268	G. M., N. Y. C., 1889, May 6	51	Gleet, 6 years.	1	5	18	7	9	2 mos . . .	Enlarged to No. 28; well	No. 28, well; re-examined '91, Apr. 16 .	2 years.
269	A. B., Bayonne, 1889, June 2	41	Neglected urethritis, 23 years; urethrotomy.	3	3, 5, 6	5	10	Irregular.	1 mo. . . .	Enlarged to 28; and married . . .	Family physician reports well, '91, June .	2 years.
270	C. A. A., Boston, 1889, June 29	32	Traumatism, 5 yrs.	2	2¼, 5½	20	5	8	1½ mos . .	Enlarged to No. 28; well	Re-examined, '90, Sept. 20 . .	No. 2 years.
271	B. R., Hackensack, 1889, June 22	24	No venereal disease. Cystitis, recent .	1	4	4	5	7	1 mo. . . .	Enlarged, No. 25 . .	Heard from	One-half year.
272	M. J. T., N. Y. C., 1889, Sept. 12	36	Strong injections; 8 years; prostatitis.	2	2, 4	14	11	Irregular.	1 mo. . . .	Enlarged to 26; gone to St. Domingo . .	Re-examined, July	One and one-half years.
273	D. D. B., Montreal, 1889, Sept. 15	31	Traumatic, 15 yrs.	2	3, 5½	6	4	5	1½ mo. . .	Improved to No. 21; gone home	His physician reported well, '91, February .	One and one-half years.
274	C. H., Croton, 1889, Sept. 20	47	Inflammation; cystitis; 10 years.	3	2, 4, 5	11	Irregular and in long intervals.	9	1 mo. . . .	Improved, No. 20 . .	'92, Sept. 23, reports well	3 years.
275	E. L. T., N. Y. C., 1889, Sept. 28	33	Strong injections; 4 years.	2	2, 4½	21	4	9	1 mo. . . .	Enlarged to No. 26; is content	Re ex., '90, Jan. Seen '92, Sept. 6; well .	3 years.
276	Cha. H., Brooklyn, 1889, Nov. 21	48	Strong injection; 30 yrs.; urethrotomy.	2	3, 4	23	4	7	1 mo. . . .	Enlarged to No. 30; well	Re-examined, April 2	Two and one-half years.
277	H. S., N. Y. C., 1889, Dec. 11	20	Gleet; 1½ years.	1	4	21	4	14	2 mos . . .	Enlarged to No. 26; endoscope, etc. . .	Friends report him well, '91, Nov. . . .	2 years.
278	Dr. H. H., Brooklyn, 1889, Dec. 22	39	Gleet, 5 years.	1	4½	22	6	7	2 mos . . .	Enlarged to No. 30; well	Re-examined, '91, March	1 year.
279	J. R. P., 1890, Jan. 16	37	Strong injections; 4 years.	2	2¼, 6	21	7	9	2 mos . . .	Enlarged to No. 28; well	Not heard from.	
280	E. B. D., Wisconsin, 1890, March 21	40	Urethritis; prostatitis; 2 years.	2	1¾, 4¾	9	10	9	3 mos . . .	Enlarged to No. 28; well	Re-examined, April	1891, 1 year.
281	N. P. S., Woodstock, 1890, March 29	36	Inflammatory discharges; 3 years.	2	2¼, 4½	Filliform 12	4	18	2½ mos . .	Improved, No. 20; gone home	Prevented from coming again to N. Y. .	
282	E. R., Dallas, Tex., 1890, May 12	50	Inflammations; uncertain cause; 20 years; prostatitis.	1	6½	12	8	6	1½ mos . .	Enlarged to No. 28; is well	Not heard from.	
283	A. L. B., Bayonne, 1890, September	48	Gleet; 3 years; prostatitis.	1	7½	17	7	8	2 mos . . .	Enlarged to No. 28; is well	By family physician, '92, March	One and one-half years.
284	J. M. L., Watertown, 1890, Oct. 9	75	Inflammation; cystitis; retention; 15 years.	2	4½, 5½	17	6	At long intervals 1 year	Much improved; 26; left for home . . .	By letter, well, 1892 . .	1 year.	
285	L. S. W., City, 1890, Oct. 11	73	Gleet, retention, prostatic hypertrophy, 12 years.	2	5, 6½	14	4	7	1 mo. . . .	Much improved and prostate reduced .	Not heard from.	
286	J. B., Texas, 1890, Jan. 3	24	Urethritis, urethral fistula, 7 years.	1	7	8	8	8	2½ mos . .	Enlarged to No. 28; well	Re-examined, April 15	1892, 1 year.

SYNOPSIS OF THE THIRD HUNDRED CASES OF STRICTURE OF THE URETHRA TREATED BY ELECTROLYSIS.
TABULAR STATISTICS—CONTINUED.

Number	Patients' Initials, Residence, Date of First Visit.	Age—Years.	Cause, Duration, Complications of Stricture.	No. of Strictures Found.	Distance from Meatus, Inches.	Size of Stricture, Fr. scale—No. How many Sources.	Treatment.	Sequel and Calibre of Urethra when Discharged, French Scale No.	Last Heard From After Treatment.	Time of Observation After Discharge Without Relapse.
287	W. B. T., White Plains, 1891, Jan. 17.	45	Urethritis, cystitis, 20 yrs.	2	2.7	17 12	Irregular for 4 months.	Enlarged to No. 28; well.	Re-examined, May 18, '92.	1892, 1 year.
288	W. H. S., N. Y. C., 1891, Jan. 22.	47	Gout, urethritis, cystitis, 2 years.	2	2½, 5½	17 11	Irregular 5 mos.	Meatus won't admit larger than 24; well.	Seen off and on; is well, '92, March.	1 year.
289	T. B., Roanoke, 1891, Feb. 7.	41	Strong injections, 1 year.	2	2¼, 5¼	22 3	lar 5 2 wks.	Enlarged to No. 28.	Written is well, Dec. 4, '92.	'91, 10 months.
290	J. P., Katonah, 1891, Feb. 25.	29	Inflammation, cause uncertain, 6 mos.	1	6¾	large calibre 17	5 2 mos.	No. 28 passes easy.	Re-examined, Sept. 2, '92.	One and one-half years.
291	F. H. S., 1891, March 9.	46	Gleet continued 25 years.	10	3.5	17 8	7 2 mos.	27, utmost capacity of meatus; well.	Not heard from.	
292	H. N. P., N. Y. C., 1891, March 31.	31	Gleet, 12 years.	2	2¾, 5¾	17 8	7 2 mos.	No. 28; well.	Well; heard direct & indirect, '92, July.	1 year.
293	J. L. M., Brooklyn, 1891, March 28.	66	Rectal abscess, urethral fistula, strong injections, 25 years.	1-6	Calcareous.	Irregular.	4 mos.	No. 26, the capacity of meatus.	Re-examined, May 8, 1892.	1 year.
294	W. H. B., 1891, April 18.	33	Urethral abscess, 18 years.	5	6½	18 3	7 ½ mo.	Enlarged to No. 25; much improved.	Not heard from.	
295	C. D. K., S. C., 1891, May 10.	33	Traumatism by instruments, 6 years; urethrotomy.	2	4, 6½	18 6	16 3 mos.	Enlarged to No. 28.	Re-examined, May 22, 1892.	1 year.
296	W. M. H., Chicago, 1891, May 12.	50	Urethritis, 53 years; urethrotomy; perineal section.	3	3, 4½, 5½	14 3	7 ½ mo.	Enlarged to 23; patient gone west; much improved.	Not heard from.	
297	G. A. B., City, 1891, May 23.	50	Gleet, 2 years.	1	6	18 3	10 1 mo.	Improved, 26; feels well enough.	Re-examined, Dec. 16, 1891.	7 months.
298	W. K., City, 1891, June 2.	45	Urethritis, 5 years.	3	3¼, 4¾, 6	21 6	14 3 mos.	Enlarged, 28; endo-scope treatment.	Reports well, '91.	7 months.
299	W. T. C., Trenton, 1891, June 19.	30	Urethritis, gleet, 12 years.	1	5½	21 3	6 ½ mo.	Enlarged to 28; is content.	Not heard from.	
300	E. D. W., N. Y. C., 1891, Aug. 15.	36	Gleet, 5 years.	2	2¾, 5	17, 15 12	Irregular for 6 months.	Enlarged to 28; well.	Saw patient, who is well, Feb., '92.	8 months.

upon the end which is used in entering the meatus, an egg shaped bulb, which is the full size given in my tables. Therefore my No. 32, is just as large as the conical steel sound No. 40 at the end.⁴

This explanation is deemed necessary to meet objections and a clearer understanding about the calibre of the urethra as stated in the statistics.

The third 100 cases differ somewhat from the two hundred published before, as this is the 100 consecutive cases treated by the writer, and even if treated only temporary the result is stated, regardless, whether the patient remained under treatment long enough for an expected favorable result or left for some reason before being cured. Excluded from the consecutive order were only consultations, or patients who were seen once and came for an examination or diagnosis.

Two remarkable failures are candidly acknowledged, and need some explanation. Case 204, was very bad; strictures everywhere from the meatus to the neck of the bladder complicated by urethritis, peri-urethral abscess, and made worse by former bungling electrolytic applications. The electrolytic treatment by the writer improved the urethra by an enlargement from No. 3 to No. 17. Progress was too slow, and both patient and operator getting tired of the case, I myself sent to Dr. Keyes, who afterward wrote "he cut everything," and acknowledged the severity of the case.

No. 217, came for treatment long and faithful enough, but proved an entire failure, after a certain time showing relapse, and new inflammation. The plausible causes were: the operator by over anxiety doing too much and, the patient in intervals practicing masturbation, thereby creating new acute inflammation.

Notwithstanding these explanations for cause, the result of these two cases are failures, and are recorded as such.

Recapitulation.—The enlargement of the calibre of the urethra by the electrolytic treatment was as follows:

Strictures which admitted no instrument were enlarged from No. 24 to 28 French, respectively.

Strictures which admitted a No. 4 instrument were enlarged from No. 14 to 28 French, respectively.

Strictures which admitted a No. 6 instrument were enlarged from No. 17 to 28 French, respectively.

Strictures which admitted a No. 7 instrument were enlarged to No. 20.

Strictures which admitted a No. 8 instrument were enlarged from No. 21 to 28 French, respectively.

Strictures which admitted a No. 9 instrument were enlarged from No. 17 to 28 French, respectively.

Strictures which admitted a No. 11 instrument were enlarged from No. 20 to 28 French, respectively.

Strictures which admitted a No. 12 instrument were enlarged to 28.

Strictures which admitted a No. 13 instrument were enlarged from No. 26 to 28 French, respectively.

Strictures which admitted a No. 14 instrument were enlarged from No. 26 to 28 French, respectively.

Strictures which admitted a No. 15 instrument were enlarged from 25 to 28, respectively.

Strictures which admitted a No. 17 instrument were enlarged from No. 20 to 28, respectively.

Strictures which admitted a No. 18 instrument were enlarged from No. 25 to 32, respectively.

Strictures which admitted a No. 20 instrument were enlarged from No. 25 to 28, respectively.

Strictures which admitted a No. 21 instrument were enlarged from No. 25 to 32, respectively.

Strictures which admitted a No. 23 instrument were enlarged from No. 27 to 30 French, respectively.

Strictures which admitted a No. 25 instrument were enlarged from No. 30 to 32, respectively.

The result of the enlargement of the calibre of the urethra varied according to circumstances, as necessities, wishes of the patients, time allowed for treatment, nature of the stricture, complications, general condition as occupations, vices or virtues of the patients. But results must be considered very good, even by chronic grumblers, if a calibre of a urethra can be enlarged to a No. 28 French, when at the first visit no instrument would pass, and experts have tried in vain before. In some cases the family physician had tried for weeks, in others, celebrated professors were given chances, without being able to pass any instrument, and the

⁴ Journal Amer. Med. Assn., Sept. 8, 1892.

Hutchinson, but the discussion was postponed until the evening.

In response to the request of Dr. Newman that his statistics be submitted to a competent committee for investigation, Dr. Goelet was made the chairman, and Dr. Herdman suggested that two of the members of this committee should be selected from outside of the Association so as to entirely free the investigation from even the appearance of bias.

The Association then adjourned until evening, in order to give an opportunity to inspect Edison's laboratory.

THIRD DAY—EVENING SESSION.

SCIENTIFIC SESSION.

Discussion on Dr. Newman's Paper.

Dr. S. T. Anderson, of Bloomington, Ill., said he understood the author advised against the use of this method in cases of traumatic stricture, but he could report favorably on three such cases which had been treated according to this method. Last fall a man fell astride the arm of a mowing machine, and immediately after the accident he experienced some difficulty, but did not seek medical advice until last January, when Dr. Hill brought the patient to him. In three cases previously the operation had been done at one séance, and this was the plan adopted in the present case. There was no subsequent difficulty except some pain that night and the following day. The other cases of traumatic stricture occurred five or six years ago, and they have remained well ever since. Dr. Newman is an honorable man, and there is no occasion for doubting his statements about the efficacy of the treatment. The cases just cited show the success of the method when applied to cases which Dr. Newman did not even claim to cure by his method. He would probably condemn this heroic treatment, but the important point to remember is that it *succeeds*.

Dr. D. S. Campbell, of Detroit, said that in a paper which he reading before the Detroit Library Association, he had reported fifty-six successful cases of non-traumatic stricture treated by this method. There had been no relapses in the course of four or five years. He did not favor the employment of a current over 15 milliamperes, for the treatment is usually followed by a certain amount of congestion, and urethral catarrh, nor would he advise a repetition of the applications oftener than once or twice a week. The electrode glides easily past strictures impassable to other instruments. For instance, in a case in which he had failed to pass a No. 2 English bougie, he had no difficulty in passing a No. 4 electrode. The secretion excited by the application may serve as a lubricant. He had read a paper before the Surgical Section of the American Medical Association, last June, on the treatment of a similar condition—strictures of the œsophagus—by this same method. In one case, owing to a stricture at the cardiac end of the œsophagus, it was impossible to pass a bougie into the stomach, and other surgeons in consultation had advised gastrotomy, yet after subjecting this seemingly hopeless case to electrolysis, with a No. 2 English bougie passed down to the stricture, and repeating the application on the third, sixth and twelfth days, it was possible at this fourth treatment to pass the bougie through the stricture, and after three months of treatment quite a large bougie could be readily passed into the stomach.

Dr. Dickson said that the cases in which he had tried this method were very unfavorable ones, as they had been previously subjected to various cutting operations by the surgeons connected with the hospital. Of course, after such treatment there is much cicatricial tissue, which greatly complicates the subsequent treatment by electrolysis. In one case of rupture of the urethra, which had been operated

upon and was convalescent, the wooden handle of an axe struck the injured part. Two well known surgeons performed perineal section, but were unable to find the urethra at all, so that when the speaker first saw the patient there were numerous sinuses and much foul discharge along with extensive cicatrices. There has been no sound passed on this man now for a long time, and he is in excellent condition as a result of electrolytic treatment. The speaker, therefore, wished to place himself on record as heartily in favor of this method of treatment in even the worst forms of stricture.

THE PHYSIOLOGICAL EFFECTS OF A MAGNETO-ELECTRIC CURRENT OF REGULAR VARIATION.

By J. H. Kellogg, M.D., Battle Creek, Mich.

In the January number of the *Archives de Physiologie*, M. D'Arsonval, assistant to Brown-Séquard, of Paris, published a brief *résumé* of some interesting studies upon the physiological effects of the alternating magneto-electric current of regular variation. The ordinary magneto-electric apparatus produces a current which varies in intensity very abruptly, as shown by the curves produced by this current by the aid of an apparatus suitable for the graphic study of electrical currents. The same is true of induction apparatus of all sorts, which are also subject to another variation from the fact that the two currents furnished by an induction apparatus are of very unequal intensity, owing to the conditions inseparable from this mode of producing electricity. The magneto-electric machine furnishes a current the force of which is precisely the same in each direction, and hence possessed of qualities radically different from those of the faradic current. D'Arsonval succeeded in constructing an apparatus capable of producing a current which, when graphically represented, gave perfectly smooth and uniform curves. The peculiarities of this current are thus described by D'Arsonval in a communication to the Academy of Sciences January last:

"In a previous communication I have indicated a general method for obtaining by synthesis the form of the electrical wave used to excite a living tissue. This curve, which I have called the 'characteristic of excitation,' shows the electric excitant from a physical point of view, and enables us to employ it always in identical conditions. The numerous experiments which I have made by the aid of this method have enabled me to formulate the following law in a simple case, such as one of uni-polar excitation: *The intensity of the motor, or sensory, reaction is proportionate to the variation of the potential at the point excited.* Since then, I have conducted a special study, from a practical medical point of view, of the electrical effects produced by alternating currents with sinusoidal variations, and I have established the following facts:

"1. By regulating the sinusoidal apparatus, one may pass through the body currents of great intensity without producing either pain, muscular contraction or chemical action. This absence of physiological action is, however, only apparent, for an analysis of the air of respiration shows that the passage of this current is accompanied by an increase in the absorption of oxygen, and in the elimination of carbonic acid gas.

"2. By gradually increasing the frequency of the alternations, energetic muscular contractions may be induced, but the contractions are infinitely less painful for equal intensity than when an induction coil is used. In these conditions respiratory combustion is considerably increased, and these currents act powerfully in modifying nutrition."

Nine years ago the author undertook a somewhat extended study of the effects produced by the various forms of electrical apparatus, employing not only apparatus ordinarily used for medical purposes, but machines constructed for use

in the physical laboratory, or other non-medical purposes. Among the various forms of apparatus experimented with was a small magneto-electrical apparatus, commonly known as a telephone generator, and used in central telephone stations for generating currents to ring the bells in the circuit. It was found that this machine possessed the peculiar property of being able to produce powerful but painless muscular contractions. The writer has had one or more of these machines in use in the sanitarium under his charge since the date referred to, and described the machine, together with some of the peculiar properties of the current produced by it, in a paper read before the Cincinnati meeting of the American Medical Association, and has, in all, made several thousand applications of the current under various conditions. The machine has been exhibited, and its peculiar properties demonstrated to many physicians, among others Dr. E. Betton Massey, of Philadelphia, in the summer of 1887, who, like others, was at a loss to understand the peculiar painlessness of this current, notwithstanding the remarkably vigorous and widely extended muscular action produced by it.

The effects of the current produced by this machine were also described in a paper upon the "Function of the Round Ligaments," presented before the American Association of Obstetricians and Gynecologists at its annual meeting for 1889.

The interesting observations of D'Arsonval, and the apparent identity of the current produced by his apparatus with that which I had had in use for nine years, led me to undertake a series of studies for the purpose of becoming better acquainted with the apparatus and the current produced by it. I accordingly had constructed an apparatus for making graphic representations of electric currents, with which I have made several hundred tracings from the magneto-electric machine referred to, and various forms of faradic machines, a few of which are herewith presented.

The uneven character of the faradic current, whether rapidly or slowly interrupted, as well as the great difference in the strength of the two currents furnished by an induction machine, is very clearly shown in Nos. 1, 2, 3 and 4, which are all furnished by an excellent Tripièr apparatus made by the McIntosh Battery and Optical Company. The curves furnished do not differ materially from those produced by the currents of other forms of faradic apparatus, a number of which I have taken in the same manner.

Nos. 5 and 6 were obtained from the magneto-electric machine to which I wish to call special attention in this paper. These curves, as will be seen, correspond exactly with the curve obtained by D'Arsonval with his apparatus, (No. 6) which is an exact reproduction of the representation published by D'Arsonval in the *Archives de Physiologie* for January, 1892.

The two special and most important characteristics of this current, to which the term "sinusoidal" has been very appropriately applied by D'Arsonval, according to my personal observations are:

1. Its comparative painlessness; and
2. Its great penetrating power.

When an ordinary sponge electrode connected with the machine is placed in each hand and firmly grasped, and the machine made to rotate slowly, vigorous contractions occur in each arm in alternation, in which all the muscles of the arm seem to participate.

Placing one electrode in contact with the feet and grasping the other between the two hands, the muscles of both limbs are thrown into most vigorous muscular contraction. There is no tetanic contraction, however, as in the employment of the faradic current, and absolutely no other sensa-

tion than that of motion, unless the current is made strong enough so that pain is induced by the violence of the muscular movement itself.

With one pole placed in the vagina and the other upon the abdomen, and with the proper adjustment of the vaginal electrode, contraction of the muscles of the abdomen and of the thigh of one side, or both thighs in case my divided pole vaginal electrode is employed, may be induced, without other sensation than that of motion. The patients suffer no inconvenience whatever from the application of a current sufficiently strong to throw into vigorous action all the voluntary muscles of the lower abdomen, pelvis and upper thighs.

I have noted a number of motor points in the pelvis, by pressing the electrode upon which most powerful and extensive muscular contractions may be induced. I have often seen a patient lying upon the office table with the muscles contracting so vigorously under the influence of the current as to shake the table violently, and yet experiencing no unpleasant sensations whatever.

Applied to the interior of the stomach by means of a suitable electrode passed through a stomach tube, the current induces so strong muscular contractions as to induce in some cases nausea and vomiting. By the aid of the stomach tube the movement of liquids in the stomach, undoubtedly set up by the strong muscular contractions, can be easily distinguished.

One of the most serviceable uses which I have found for this peculiar current is for the relief of obstinate constipation. The current may be applied with one electrode in the rectum and the other over the abdomen, or applied to the upper cervical region.

The first method of application is of special service in cases in which a flaccid condition of the different muscles exists as a permanent factor inducing constipation.

The second mode of application is most useful in cases in which the condition is chiefly the result of deficient peristaltic activity. The marvelous penetrating power of the current renders it particularly efficient as a means of stimulating the excito-visceral nerves which leave the spinal cord at the upper cervical region.

A third method of great efficiency in cases of constipation accompanied by marked dilatation of the stomach, is by means of a suitable electrode introduced through a stomach tube into the stomach in combination with the rectal electrode. Patients rarely fail to experience decided effects from one or the other of these modes of application after two or three applications have been made.

An induced current capable of producing equally strong contractions is so painful as to be almost intolerable. The same is still more emphatically true of contractions produced by the induced current obtained from the Leyden jar of a static electrical machine with the discharging rods placed nearly together, or the so-called Morton current.

As a means of exercising the muscles, especially the muscles the action of which cannot be easily isolated in voluntary action, as is the case of many of the muscles of the trunk, and in cases of paralysis in which degenerated changes are not far advanced, this current certainly affords a method superior to all others. It is also of great service as a means of passive exercise in connection with rest cure, encouraging tissue renovation and reconstructive action much more efficiently than massage, which, however, may be employed in connection with it to excellent advantage. The impression made upon the patient who sees his muscles in vigorous action without feeling the slightest prickling, cramping, or other unpleasant sensations, is of the happiest sort, especially in the case of persons who have previously been "shocked" by the clumsy use of the electrical current.

unavoidable through the employment of the ordinary faradic apparatus.

The effect of the current upon the sensory nerves is equally remarkable. With sponge electrodes applied to the temples, the machine being run at a high rate of speed and the current controlled by a rheostat, a most remarkable display of light sensations is observed in the vicinity of each pole, the impression being that of moving circles concentrically arranged. The appearance might be not inappropriately compared to a great whirlpool of light. Absolutely no other sensation is perceived with a current of moderate intensity. As the intensity of the current is increased by the adjustment of the rheostat, the display of light increases to a marvelous extent, and finally a light prickling sensation is experienced in the skin, which becomes painful and is accompanied by tonic contraction of the underlying muscles if a certain strength of current, which is variable with each individual, is exceeded.

I am studying the effect of the current upon the various divisions of the tactile sense, the sense of taste, the olfactory sense and the auditory sense, but am not yet prepared to publish my results. The peculiar effects of the current upon the optic nerve I attribute to its remarkable power of diffusion, or penetration.

I have found the current of very great service in connection with the application of large currents for the electrolytic treatment of uterine fibroids, as it greatly lessens the pain of the application and thus assists the patient to tolerate a current of considerable greater strength than could otherwise be borne. When used for this purpose, an additional electrode is placed upon the back, to which one reophore is attached, the other being connected with the intra-uterine electrode. If, after the galvanic current has been made as great as the patient can endure, the magneto current is turned on, the patient is at once relieved and the galvanic current may then be increased, usually from twenty to thirty milliamperes. Even when the galvanic current has been increased to such an extent as to lead the patient to plead to have it reduced, the pain ceases almost instantly when the sinusoidal current is switched on.

As an analgesic, and for the relief of various ill-defined sensations to which persons refer under the common term "pain," I know of no mode of electrical application so valuable as the sinusoidal current obtained from the machine when moving very rapidly, the dose, of course, being regulated by means of a rheostat.

I do not consider myself yet fully conversant with the properties of the capabilities of this new current, as my duties are so pressing I can only snatch a moment's time now and then for experimental studies. But it has proved so serviceable in my hands during the last nine years, I feel sure no one who undertakes its use will be disappointed in it, and that it is a very valuable addition to electro-therapeutics.

My purpose in calling attention to it at this time has not been to present a claim for priority in discovery, as my failure to make a careful physiological study of the current until after attention had been called to it by D'Arsonval, clearly entitles the latter to first credit for placing this new therapeutic agent in the hands of the profession, but I did observe the special nature of the current and have made use of it for nine years, and have publicly called attention to its peculiar properties on several occasions.

I ordered some months ago from Gaiffe, of Paris, a machine made after the model of D'Arsonval's, but received from him a reply that the apparatus had not proved as satisfactory as at first hoped, and that he was engaged in experimental researches with a view to improvements which would be embodied in the new model as soon as completed.

The apparatus constructed by D'Arsonval is quite different in design from the one which I employ, but the effects seem to be the same. The machine was originally made for ringing the bells on long circuits connected with the central telephone station. The two machines which I have in use I obtained from the Western Electric Manufacturing Co., Chicago. In reply to an order for additional machines which I sent them recently, I learn that the apparatus is no longer in use and is not manufactured. By the aid of an excellent practical electrician in the employ of the institution of which I have charge, I am experimenting with different forms of apparatus designed with reference to simplicity and the production of a current of the greatest possible degree of uniformity in the increasing and decreasing of the current in each direction. The purpose sought is to produce a current which, when graphically represented, will present a smooth curve without break or irregularity, but an alternate swelling and diminution in opposite directions, the change in the direction of the current being effected at the instant when the zero point is reached.

The device by which the graphic representation of electric currents is secured is sufficiently unique to be worthy perhaps, of a brief mention. The idea of the device is in part borrowed from that of D'Arsonval, although the method of securing the record is substantially different. It consists:

1. Of an electro magnet so arranged as to form an annular field, in which a solenoid of delicate construction is made to move to and fro by an alternating current. By connecting a delicate lever with this solenoid in such a manner that the solenoid acts upon the short end of the lever, the end of the long arm may be made to inscribe its movements upon a rotating cylinder covered with smoked paper. I find this arrangement much more sensitive than that of D'Arsonval, in which the solenoid acts upon the rubber diaphragm of a transmitting tambour, from which the movement is communicated to an ordinary recording tambour of smaller size.

For the perfection of this instrument I am much indebted to the ingenuity of my electrician, Mr. H. A. Dow, whose previous extensive experience as superintendent of an electrical manufacturing establishment for a number of years, eminently qualifies him to devise ways and means of overcoming mechanical difficulties in the construction of special electrical apparatus.

I hope to be able to present soon, a new apparatus for the production of a sinusoidal current of an eminently satisfactory character.

I ought perhaps to mention also, some studies of the alternating current employed for are lighting in cities. I find this current to give a smooth and uniform curve, which I believe to be truly sinusoidal, although the rate of interruption is so great that the curves are small and hence their form cannot be so accurately studied. I am devising means to increase the delicacy of my recording apparatus which I trust will enable me to determine certainly the exact form of the current. The properties of this current are certainly similar to those of the sinusoidal current. The peculiar painlessness of the current, as compared with the ordinary constant current, is certainly most remarkable. I find that it also possesses decided anæsthetic properties. Testing the tactile sense before and after the application, I found the sense of locality diminished 100 per cent. as tested by the æsthesiometer. The time required for the perception of a tactile sensation was found to be doubled. I believe this current possesses most potent and physiological properties.

Discussion.

Mr. Carty wished to call attention not only to the impor-

tance of the new medical features of the paper, but to the fact that the author's observations were based on tracings showing all the elements of the current. It would only be necessary to send these tracings and a description to Mr. Kennelly, for example, and he would be able to make an apparatus which would give just these results; these tracings are fully as exact as chemical formulæ. There is no electric current which cannot be represented by the graphic method, and if this method were better understood there would be less misapprehension about many points in electrical science. It is not sufficient in recording one's observations to simply state the ampèreage, for a milliamperemeter can be constructed which will measure an alternating current.

The President said that ten years ago he described the physiological effects of an oscillatory current derived from a franklinic machine, and they were very similar to those described in this paper. He had frequently demonstrated the fact that while a current from an induction coil sufficient to cause flexion at the wrist causes much pain, this oscillatory current would produce powerful muscular contractions extending up to the shoulders without any pain whatever, and indeed a numbing effect would be observed. Recently, he had observed still another current from the franklinic machine. We are now working with the object of producing the maximum effect on the motor nerve and the minimum effect on the sensory nerve, and when we succeed in this, we shall be able to accomplish many things which are now impracticable. At present our applications are limited mainly by the pain produced, or by the destructive effects of the current on the skin. He hoped to be able to present his apparatus at the next meeting of the Association.

THE CONSTANT CURRENT IN GLAUCOMA AND CATARACT.

By Dr. S. T. Anderson, Bloomington, Ill.

Mr. President and Members of the Society:—Ruskin has said "Facts are homely things, but what the world wants at present more than it wants anything else is downright facts."

With these I come to you, and though I shall clothe them in plain attire, I trust I shall not thereby wholly divest them of attractiveness.

On the contrary, let me hope to contribute a mite to the sum of knowledge which incites us all to further careful and profitable investigation.

I will briefly speak of three cases in the order in which they came to me, and allude incidentally to one not my own, but knowledge of which led me into this line of experiment.

Case 1.—In August, 1885, a lady aged forty-five came to my office weeping and nearly blind. Her glasses were no longer serviceable and she had sought an oculist for the purpose of obtaining better lenses. On examination he found cataract in both eyes, and fairly well advanced. He informed her that there must be further progress of the disease and then removal of both lenses.

She came to me asking me to try electricity, and I consented, telling her I could possibly mitigate in some measure the unpleasant head symptoms accompanying her ailment, but could promise her no more.

Mild galvanization did this, but during the first few days of treatment I remembered that an acquaintance in Decatur, Ill., and a partner of his in Chicago, were claiming to have done some wonderful things, among which was the cure of a case of glaucoma which two of Chicago's good oculists had considered incurable. I at once wrote to the person said to have been cured, asking as to the genuineness of the published testimonial, and I read to you now from his letter to me:

125 STATE ST., CHICAGO, ILL., Aug. 25, 1885.

Dear Sir:—The above (his printed testimonial) is true, except my eyes have not been so strong as they were before the affliction, but are pretty strong by taking care of them, which I assure you I try to do. The cure was a great success, etc.

His letter to me was written about eight years after treatment—certainly a sufficient time for a test—and during these years he operated one of the finest photographic establishments in Chicago.

His letter gave me hope and I communicated with my patient's brother, who earnestly insisted on an experiment being tried in her case. I purchased the special batteries which were to be worn over the eyes for one or more hours twice daily, and began treatment, obtaining much comfort for her during the first few days, and later she claimed to have better vision, but whether real or imaginary I could not tell. Not being an oculist, I now conferred with the one consulted by my patient. As he had made diagrams representing the stage of disease at his first examination, I had him make new drawings, and they showed fair improvement which was supportive of the patient's statements.

The treatment was continued for six weeks, and I again sent her to the oculist, whose drawings now indicated marked improvement in both eyes. The patient also affirmed that her vision was decidedly better. From this time the treatments were of shorter duration, and later but once daily, with continuous improvement. The result is that for more than six years she has been and still is wearing with satisfaction the glasses which she thought had failed her, and whose supposed faultiness led to the discovery of her true condition.

I ought perhaps to say that for about twenty years prior to her treatment by me, and for some time subsequent to restoration of sight, she had serious nervous disturbances which were much helped by the electric treatment, and finally entirely subsided under use of zinc phosphide and nux vomica. She is now in good health and has good vision.

Case 2.—In January, 1887, Mr. D., aged forty, came to me, having been afflicted with sore eyes for nineteen years. Beginning with granular lids, the disease finally caused opacities and the condition which oculists pronounced glaucoma.

When he came to me he had been totally blind in one eye for four years, with total blindness of the other eye for four months and previous to this at intervals during a year or more. The lids were indurated and swollen; so rigid as to remain open while he slept. Surely an unpromising case, but he was anxious to try the experiment, and I was willing though not hopeful.

His general health was good. I began at once with the mild currents which the eye batteries afforded, early relieving pain and materially reducing the inflammation. At first he had two daily sittings of about two hours each. In two weeks he told me he could observe dimly the outlines of the court house as he passed on the opposite side of the street, and later he could observe the time by the town clock as he sat at my office window, on the corner diagonally from the court house square. One day on coming into the office, I found him waiting for me, having come alone. Beside him on a slate I saw the word "dynamite" written. On inquiring if he knew who had written it, he told me he had just tried to write a word. Observing that he had not dotted the i, I asked him to try that for me, and he placed the dot at the first effort.

Lest I weary you, I will quote his letter of May 2, 1887:

"I am able to go where I choose without help, can recognize my friends and read medium type under favorable light, and much smaller letters if on a dark background

To say that I can, with the eye which was blind four years, find my way about town, does not tell all the truth, as I can read some types with it and can distinguish colors."

After this he conducted a restaurant in a neighboring town for a year or more, then came back to Bloomington in the employ of the street railway company, and finally went to the South from whence he came and was lost to observation.

Case 2.—Miss E., aged 12. This patient was placed under my care by a reputable oculist October 4, 1886, and I last examined her April, 1887.

The patient had complained much of headache and poor vision for a long time, until at last the father sought help for her. She could still distinguish some objects near by and could give the time indicated by an ordinary clock dial at a distance of two feet. She had cataract in both eyes.

I could not keep her in the city and was obliged to allow the parents to apply the batteries at their home near a neighboring village and to give me an occasional visit. She grew quite restive under the treatment, being obliged to wear the batteries for two or three hours each day, and the treatment was not satisfactory to me in some respects. Nevertheless, my friend the oculist and myself would make examinations during her visits to me, and he made drawings and kept measurements of visual distance gained. This was pleasing to me. When she finally passed from my care she could read the indications on the city clock, a distance of at least four hundred feet from my office, could see the children playing at school, a good fourth of a mile from her home, which was on elevated ground, and could readily observe the time indicated by a watch dial at a distance of fifty-seven inches.

I have not had the privilege of an examination since April, 1887, but recently I saw her in the city, wearing glasses (she was somewhat astigmatic) and visiting the stores quite independently. The disease therefore must have been mastered, or its progress stayed at the stage of improvement above indicated. In either case the results were worth obtaining. I put it as modestly as I can.

Let me now briefly detail the method of treatment. My title indicates the galvanic current, but it is also a very mild current applied for a considerable time by special forms of batteries which I will show you.

The patentee claims that a current of peculiar quality is generated by them, but whether this is true or no, I cannot say. Certain it is the current is soothing, that it controls pain and inflammation and may, if needful, be applied continuously for hours, which is not true of any other electrical appliance of value known to me. I have had them adjusted over the eyes alone or additional ones at the cerebro-spinal juncture, relieving pain and irritability and inducing restful sleep of several hours' duration. In like manner they are used in affections of the eyes.

Herein is a most practical exemplification of the saying: "It is the mild power which subdues." Strong currents, besides causing pain, destroy the delicate tissues, while this mild force seems to produce gentle electro-chemical changes whose sequelæ are improved nutrition; restored functional activity; health.

Discussion.

The president said he could not comprehend the construction of the battery, and he asked some of the electrical experts to express an opinion as to the direction of the external circuit.

Dr. Anderson said he only knew there was a current by the effects produced, chiefly by the relief of pain.

Dr. J. A. Cutter remarked that it was just such questions as these which demonstrated the need of such an Associa-

tion as this. He then referred to the case published by Knapp, in which he removed one eye for malignant disease, and the disease returning in the other eye, the patient went to an electrical quack, who cured her.

Mr. Carty, speaking for several of the experts who had examined the battery, reported that the metallic case "short circuited" the cell. The current which such a cell could generate would be exceedingly feeble, but by this "short circuiting," it would be reduced to infinitesimal proportions.

Mr. Carty thought the heat radiated from the case would be greater than that produced by any electro-chemical action in the cell, and that therefore, the effect on the patient would be a diminution of temperature. Any conductor connecting points having a differential of potential will experience a flow, and the parts may be of any shape or length, and there may be any number of paths, the current dividing and passing over these paths in a ratio inversely proportionate to the resistance of the path; but in the present instance, the available current would be inappreciable.

Dr. Gunning saw a similar battery quite recently, which was about the size of a blacking box. It contained zinc, blotting paper, and some salt, and it generated sufficient current to run a toy motor.

Dr. Nunn said that in the treatment of these cases, the element of pressure might have a possible value. The effect of "suggestion" could be excluded because of the record of optical measurements. If this battery does really have a useful effect, then it is time we should take up again "the electropoise" and similar contrivances, and subject them to investigation.

Dr. Anderson, in closing, said that he did not pretend to demonstrate the presence or absence of a current; he did know, however, that when applied in the manner described, the apparatus had produced an effect similar to that observed with mild currents of electricity. He did know positively that the cases treated were really cases of cataract, and that they had been examined by reputable oculists before coming to him for treatment, and also that no other treatment whatever was employed, and that the diagrams taken from time to time, indicated improvement. The cases shown no signs of relapse, and it is now six and one-half years since one of them received the treatment. He could not explain these facts; he could only vouch for their accuracy. Other cases than his own had been reported from time to time by persons whom he knew personally to be reliable parties. He would be glad if his paper awakened sufficient interest in the subject to bring out further investigation.

BOOK REVIEWS.

TRANSACTIONS OF THE THIRTEENTH ANNUAL MEETING OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION, held in the City of Washington, D. C., September 22, 23 and 24, 1891. New York: D. Appleton & Co. 1892.

Although it is rather late for these Transactions to appear, the character of the contents will induce the reader to forgive the oriental slowness of its publication. The society consisted of fifty members, over one-half of whom attended the meeting.

Dr. Bosworth's paper on asthma provoked an animated debate. He believed that the principal exciting cause of paroxysms was some nasal abnormality and not any diseased condition of the bronchial mucous membrane. He does not believe in the old theory that spasm of the bronchial muscles has anything to do with the production of

asthma. There was great divergence of opinion regarding the pathology of this disease, but the majority of the speakers favored the neurotic theory, and nasal operations in cases of well defined points of irritation. None of the disputants referred to the fact that operations in the nose have developed asthmatic seizures of a severe type, although at least one of the speakers is known to have experienced such a misfortune. While it seems to be natural for specialists to magnify the importance and results of one-sided treatment, it cannot be denied that the nose burners have opened up many a profitable field of labor. If it were not for the disposition of the essayist's critics to go back of the returns, the array of successful cases reported would appear to establish the necessity of intra-nasal operations to the cure of asthma in a large majority of instances—Bosworth says in nineteen out of twenty.

Another discussion of a topic of importance to the profession in general followed Dr. J. Solis-Cohen's paper on the symptoms and pathological changes in the upper air passages in influenza. The paper and its discussion evidenced the studiousness and painstaking habits of observation of the participants. The reader will naturally wish that the discussion had been supplemented by one on the treatment of influenza.

The tendency of specialists to ignore causes of suffering that lie without the conventional limits of their own narrow fields of work is tragically illustrated in the discussion of Dr. Riee's paper on enlargements of the epiglottis. Dr. Mulhall related the experience of a St. Louis lady who had an unyielding irritable cough. "She went abroad and consulted a prominent laryngologist, who pronounced the cause of her cough to be a distorted and enlarged epiglottis, and cauterized it. Following this there was much irritation of the epiglottis, and swelling with more cough. This lady died with pulmonary tuberculosis. She told me that the prominent laryngologist did not examine her lungs once." Immediately after the paper we find the Fellows discussing serofula, and putting themselves on record as estimating at its full value the need of studying constitutional conditions and treatment in affections of the upper air passages. In this connection Dr. Solis-Cohen defined in a most eloquent manner his conception of serofula in contradistinction to syphilis and tuberculosis. Such breadth of thought and elegance of diction rarely adorn extemporaneous discussions of medical subjects.

TEXT-BOOK OF OPHTHALMOLOGY, by DR. ERNST FUCHS, Professor of Ophthalmology in the University of Vienna. Authorized Translation from the second enlarged and improved German edition, by A. DUANE, M.D., Assistant Surgeon Ophthalmic and Aural Institute, New York. Numerous illustrations: pp. 788. D. Appleton & Co.

This excellent work of Prof. Fuchs needs no commendation from us.

Since the first German edition appeared, we have considered it one of the best text-books on ophthalmology ever published.

The clear, concise and pleasing style of the author has not suffered at the hands of the translator, and English readers are to be congratulated that Dr. Duane has presented to them, so accurately and so well, this valuable work.

The chapters on the external diseases of the eye show the work of a master mind, and in treating of disease of the conjunctiva and cornea, Fuchs is at his best. The classifications of affection of the cornea into suppurative and non-suppurative keratitis is based upon pathological ground and is certainly satisfactory.

Especial attention should also be called to the discussion of the theories of glaucoma and the different varieties of

that condition, which constitutes a chapter that every student of ophthalmic science will read with pleasure.

The intricate subject of the action of the external muscles of the eye and the determination of paralysis of them, receives new light from his treatment.

The third, a small part of the work deals with the anomalies of refraction and accommodation, while the fourth part is devoted to a description of operations. To this Dr. Duane has added some interesting and important material, and contributed some illustrations of instruments, etc., that certainly improve it.

The arrangement of the text so that the most salient points of the subject are presented in large type, while theoretical discussions and the more intricate matters appeal strongly to the student who uses this as a text-book.

While the illustrations are not as well executed as those of the original work, they are all there, and we can repeat that we know no better book on ophthalmology.

ON THE CHEMISTRY AND THERAPEUTICS OF URIC ACID GRAVEL AND GOUT, being the Croonian Lectures for 1892. By SIR WILLIAM ROBERTS, M.D., F.R.S. London: Smith, Elder & Co.

It is a pleasure to us to learn that the Croonian lectures of Dr. Roberts have been published in book form. Not in years have we had such a clear and concise description of the gouty and uric acid diathesis as is contained within the covers of this little book. Not only does it contain a brief reference to the work of others, but it is replete with the original work of the writer, and while we cannot say that the author has found out all that there is to be known on the subject of uric acid and gravel, he has wonderfully advanced our knowledge of these conditions. We regret that the space at our disposal is not sufficient for an extended review of the arguments and views advanced, for to present them adequately would necessitate the reprinting of the entire book. Therefore, we can only commend it to our readers with the general statement that we believe it should be read and digested by every practicing physician.

SYPHILIS AND THE NERVOUS SYSTEM. By W. R. GOWERS, M.D., F.R.S. Philadelphia: P. Blakiston, Son & Co. 1892.

The profession are indebted to the American publishers of Dr. Gowers' Lettsomian lectures for presenting them in a more accessible and attractive style than when they first appeared three years ago in the pages of the *Lancet*. At that time they were extensively read and commented upon, for the most part favorably. Dr. Gowers has added some unimportant matter to bring the subject up to date.

We can only repeat what we have said before, that the work contains about all that is practically known of the relation which syphilis bears to diseases of the nervous system.

MOTHER AND CHILD. Part I. Mother. By EDWARD P. DAVIS, A.M., M.D. Part II. Child. By JOHN M. KEATING, M.D., LL.D. Philadelphia: J. B. Lippincott & Co. 1893. \$2.50.

Part I occupies 76 pages and Part II 381 pages, exclusive of a well arranged index. The book covers a wider range of subjects, and is far more comprehensive in its treatment of them, than the modest and attractive title suggests. The idea of the authors is "not to supplant the physician, but to supplement his advice, and render intelligible those matters that mothers and nurses find difficult to understand," and to make intelligent action possible in emergencies when the services of a physician are not at hand. Minute directions are given for the care of the pregnant and parturient woman and for the child. The preparation of the infant's food, sterilizing milk, care of nursing-bottles, selection of wet-nurse, prevention of sickness and deformity,

are exhaustively dwelt upon. It goes into the subjects of public hygiene, surgical emergencies—ventilating, heating, lighting, foods, poisons and their antidotes, gymnastics, etc.;—diseases of children and affections of the nose, throat, ear, eye, etc. The latter subjects are presented in the form of articles written by specialists. Indeed, a large portion of the book consists of quotations from excellent writers, and this fact enhances the value and authoritative character of the work. Some of the quotations from other books are quite extensive, twelve and twenty pages long. One fills twenty-six pages and another sixty.

The following are among the writers referred to: D. F. Lincoln, A. Jacobi, C. A. Earle, S. S. Adams, C. W. Dulles, Mathews Duncan, C. F. Folsom, H. Knapp, A. W. MacCoy, A. V. Meigs, J. L. Smith, C. S. Turnbull and L. M. Yale.

No one will be likely to entertain any suspicion of plagiarism against Drs. Davis and Keating—they generally give due credit for authorship in every quotation. There is opportunity for culling and condensing with profit to the book. The two authors invade each other's territory, and the same material is worked over with unnecessary repetition.

If mothers and nurses seek the kind of knowledge they ought to possess they will find it here. There is a great deal of information that is usually written for educators particularly, but the mother ought to be an educator. There are minute directions for the tender care of patients that will rarely be followed by the middle classes. For example, it will hardly be convenient for most ladies who happen to become pregnant to hie themselves to the orange groves of Florida in severe winter, or to the cooling breezes of the northern resorts in summer, or to surround themselves with the paintings and statuary of the great masters and appoint all their surroundings with artistic beauty and harmony, in order that the coming event may be a Venus or Apollo Belvedere.

HAND-BOOK OF INSANITY FOR PRACTITIONERS AND STUDENTS.
By DR. THEODORE KIRCHHOFF, N. Y. Wm. Wood & Co.
1893.

To the bibliophile there are no bad books, some books are better than others; with this dictum in mind we have sought earnestly within the covers of this book for something to commend. The name of the translator is not on the title page, it is probable that he has some entrance into psychiatry and therefore did not care to have his name appear. The translator has done his work well, but it is to be regretted that he has wasted his talents on such a poor book. To the publishers alone therefore, must we charge the foisting of this book on the American profession.

The writer devotes the first portion of the book to the cause, symptoms, course and diagnosis of mental disorders. A few of these chapters are fair, but some of them, notably the first on the anatomical basis and the location of mental disturbances are obscure and badly arranged.

It is in the last half that we find the most glaring deficiencies. The author divides all mental disorders into two classes, first, simple mental diseases that included melancholia, mania and periodical forms of these, also paranoia, which he divides into *wahnsinn*, *verruecktheit* and confusion. The second group includes mental disorders associated with permanent anatomical changes in the brain and includes dementia, senile dementia, paralytic dementia, and "other forms." Also the mental changes associated with epilepsy, hysteria and neurasthenia, and mental disorders due to poisons. The illogical nature of the classification adopted seems to have dawned on the writer, for he says, (page 258) "We have heretofore discussed functional disorders which are *probably due to chemical changes in the nervous substance*.

After long duration and great violence these may lead to permanent and anatomical tissue changes and hence we meet with some of the terminal forms of the functional psychoses in the present section. This classification is an artificial one, *especially when we must here describe diseases without anatomical change merely because the clinical history is identical with that of allied conditions in which anatomical changes are very distinct.*" (italics ours). Could there be any stronger demonstration of the fact that no classification other than a clinical one is justified by our present knowledge of mental diseases? The writer of this review does not believe that we shall ever have a satisfactory classification of mental disorders. But if one is attempted it ought at least to include some of the best demarcated clinical groups of the last twenty-five years. It is much the same as though a writer should refuse to describe disseminated sclerosis of the spinal cord because it could not be included under either diseases of the grey or white matter. Hebephrenia is mentioned but is not accorded the dignity of separate description. Katalonia and delirium grave are conspicuous by their absence. No doubt a careful reading would reveal further defects, but it would only be a waste of time.

LECTURES ON MENTAL DISEASES. Designed especially for medical students and general practitioners. By HENRY PUTNAM STEARNS, A.M., M.D., Assistant Superintendent of the Hartford Retreat. Philadelphia. P. Blakiston, Son & Co., 1893.

In a general way, Dr. Stearns has produced a very excellent work on mental diseases. It is in the form of lectures, but is by no means colloquial in style. The writer shows a wide acquaintance with the literature of the subject, and exhibits a thorough, practical mastery of psychiatry.

The first lecture deals with the physical basis of thought and is devoted to a concise outline of the anatomy and histology of the nerve structures. It forms an excellent introduction to the special study of the subject.

Lectures two, three, and four deal with the subjects of hallucinations, illusions, imperative concepts, insistent ideas and delusions. On the whole, this is one of the best statements in the book and gives the clearest idea of these subjects that we have seen stated recently. Then follows an excellent consideration of the general principles involved in the classification of mental disorders. The author in the main adopts a mixed classification, although in some respects he adheres too much to the etiological views advanced by Skae.

The chapters on melancholia, and mania, circular insanity and dementia are excellent, as well as those dealing with general paralysis, alcoholic and epileptic insanity. He discards the term, paranoia, preferring primary delusional insanity. In the main the statement of this condition is good, but he neglects to draw a distinction between *wahnsinn* and *verruecktheit*. We hardly think that the symptom-group of insanity of the puerperal period, insanity of masturbation, climacteric insanity, and insanity of lactation, will meet with general acceptance at this time.

The work closes with a most excellent account of delirium grave, or the typho-mania of Bell. The work is clearly written, concise, and accurate in detail, and some portions of the subject are treated in a manner better than we have found in any English work on this subject. It forms a most creditable addition to the American literature of psychiatry.

TURPENTINE in typhoid fever is coming more and more in favor with the newer generation, though with many older practitioners it has been the drug upon which the greatest reliance has been placed. Wood regards it as invaluable where, in convalescence, symptoms point to slowness in healing of the ulcers, or where, in the second week, there is decided tympanites.—*Medical Record*.

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MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, APRIL 15, 1893.

THE REVISED CONSTITUTION AND BY-LAWS.

At the last meeting of the American Medical Association, there was a feeling among the members of very general satisfaction, which arose from the belief that unusual progress had been made in the way of making the organization a more scientific body than formerly.

The several Sections were so constituted as to have a separate autonomy of their own, which practically made of each one a specialty society, having particular attractions for those members of the profession who are interested in special work.

The original organization of the Association partook of the character of a convention, the annual meeting being constituted of delegates from State and local societies, medical colleges, hospitals and other public institutions with which physicians were professionally identified.

After a good number of years, it was found necessary to limit the organization to delegates from regularly organized State and other local medical societies. During these years, the annual volume of proceedings was published in book form, and issued to those members of the Association who paid their annual dues. These conditions were in accord with the requirement of the times when they existed.

Ten years ago it was felt that a needed change must be made in order to insure continued prosperity, and the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION was established, and made to take the place of the former volume of transactions.

As to the wisdom of this action there can be no question. THE JOURNAL not only became an exponent of the best thought and scientific work of the delegates to the annual meetings, but it also became a bond of union between the several State medical societies.

* With the wonderful improvements made in the

way of rapid transit facilities from and to all parts of our vast country, at the end of THE JOURNAL's first decade, there has developed another demand for a change in the working plans of the Association, or there will be an actual falling back instead of a forward movement of the organization.

This was provided for last year in the appointment of a committee on revision of the Constitution and By-laws. This Committee appreciated the weakness of the former convention delegate system, and in their report provide for admission to active membership in the American Medical Association of every member of an affiliated State society. This provision will have a grand effect in the strengthening of the State societies. In turn the officers of the State societies should vie with each other in their efforts at inducing every physician within their ranks to become individually identified with the American Medical Association.

This may be brought about through the use of a little tact in directing attention to the rights and privileges of such membership in the National organization.

Furthermore, this is the only possible avenue through which to reach a practical unification of American physicians in one organization. Ten years ago very few of the States had a State Board of Health, or in any official manner recognized the necessity for such a wheel in the body politic of the State government. Now, almost every State has its State Board of Health. Five years ago there was scarcely a single State Board of Examiners for physicians. Now there are several and the number is increasing very rapidly.

Ten years ago there was not a Chamber of Commerce or Board of Trade that appealed to the medical profession for protection from disease and accompanying disaster. To-day, every such commercial body, including financiers, manufacturers and miners is anxiously looking to the medical profession for promises of fair sailing for their peculiar and distinctive crafts. There is not a business man in the whole United States of America who is not eagerly watching his daily paper to see what action is being taken by the convention of Health Officers that is in session in New York.

Banking institutions in the chief monetary centres are arranging their loans on the expressed opinions of their medical advisors. Such conditions never before existed.

Two years ago the American Medical Association and nearly all the State societies petitioned Congress to enact a law creating a Cabinet Officer of Public Health. This petition was unheeded. August Senators and voluble Congressmen argued with the most learned physicians of our country that such an officer was not needed. A severe fright last fall

caused these same solons to revise the quarantine laws, but weakly placed their execution in the hands of the Secretary of the Treasury. What would be thought of a proposition to make the president of one of the Chicago banks, the city health officer. There is just as much sense in the one as in the other.

If there is any one thing that is more than another an outgrowth of this decade, it is the division of labor in order to obtain the greatest possible skill. This pertains to every line of business and professional work. So it is that physicians must have a representation in person in the National, State and municipal governments. Their natural positions cannot be satisfactorily filled by lawyers, bankers and mariners.

Congressmen are being educated by their constituents and at their next meeting they will evince some of their new learning by a more favorable consideration of the necessity for a Cabinet Officer of Public Health, who should have the official support of a National Board of Health, constituted of eminent physicians. Such a wheel in our Nation's government is as much of a necessity as that of Law, Interior, Agriculture or any of the other departments.

What has all this to do with the revision of the Constitution and By-laws of the American Medical Association? Very much. The revision will have a powerful influence in bringing about a unification of American physicians in one organization, and this will enable the profession to act with very much greater force than when there is a more seeming independence and individuality of action.

To obtain deserved recognition, standing and support, there must be a unity of action.

THE STATE MEDICAL SOCIETIES.

These organizations are of the utmost importance to the whole medical profession, and should number in their membership lists the entire roll of practitioners of rational medicine in every State.

It is in the State society meeting that the professional standing and character of the physicians of a given State are determined. It is there that the scientific attainments of the individual are exhibited to the best advantage. It is in the State society that an esprit de corps is established and maintained, which signifies the degree of elevation in tone of professional morals that has been attained. It is from the State societies that suggestions for needed legislation must come, whether this be for the purpose of preserving the health of the people by the enactment of a code of sanitary laws, or of laws which look to the same end through the control and legal protection of a well educated medical profession.

Nearly all of the States have enacted laws creating Boards of Health, some of which embrace clauses

regulating the practice of medicine, and require a registration of physicians in the office of a county official.

This is all right, and to which there should be no objection on the part of physicians, but inasmuch as the State imposes these legal restrictions it should go a step further and make of the registered and otherwise legally qualified physician, a recognized sanitary officer of the State. This official relationship and responsibility should be made similar to that now existing between practicing attorneys and the State. An attorney in order to have a legal right to practice his profession in any court must first pass an examination by an examining board. This being done he is registered by the clerk of the court, and at once becomes an officer of the court and State, and is liable to receive official instructions from the court.

An official relationship of physicians with the State is of interest equally to the people and to the medical profession. It is in fact a pertinent question that may be placed for solution, alongside of some of the important sociological problems of the day.

The State, and the people who constitute the State have come to regard the practice of medicine as an occupation largely pursued for philanthropic purposes, which comes about through the giving of gratuitous service to all public hospitals and charities. This line of professional work, although Divine in character, has worked and is every day working irreparable injury to practitioners of the healing art. Compensation in the way of experience, should not be accepted as an equivalent remuneration. Our legal brethren are more materialistic in their practice for the benefit of the State. When called upon to defend a miserable, poverty stricken citizen who is charged with the commission of any crime in the calendar, there is always charged a fee commensurate with the service, which, with the approval of the Court, becomes a sight draft upon the County treasury.

Even the clergy are not expected to go about doing the philanthropic work of their calling without material reward.

The people have been educated to believe that this sort of service is obligatory upon members of the medical profession, and it may very properly become one of the functions of a State medical society to do some educating in the other direction. This specific educational work of the people may begin, by a showing that physicians do not accumulate riches through the practice of medicine. That their work is both arduous and onerous, and demands a long preparatory training, which is equivalent to a considerable capital investment before any returns can be obtained.

Wealthy men and women need to be educated

through showings made by State societies, that it is incumbent upon them to endow professorships and scholarships in medical schools just as they do in academic and theological institutions. When this is done for the benefit of medical science and to aid young men and women in acquiring the knowledge they should be required to have by the State, will it be time to establish such arithmetical rules of proportion as may be practiced with equity between dispensaries, hospitals and medical schools.

Philanthropists are always well meaning people, and want to do the greatest good to the greatest number in making their gifts of money. State societies may take it upon themselves to say to the world that money given for hospital sustentation or establishment should carry with it a provision, that all hospitals enjoying such benefactions should be open for the instruction of students of medicine.

Every staff physician in a hospital which is sustained either by the State or by individual benefactions, should have the absolute right to take with him through the wards a limited class of medical students for the purpose of instruction. Where this privilege is not granted to the medical staff, State societies should say with emphasis, that gratuitous medical attention in such institutions is derogatory to the interests of medical science and to the medical profession. And the physician engaged in attendance at such institutions is guilty of unprofessional conduct.

Physicians should identify themselves with State societies, in order that their influence may be felt in rectifying existing abuses, and for the devising of plans for strengthening the stakes in which every practitioner has a personal interest.

THE AMERICAN MEDICAL ASSOCIATION.

MR. ERNEST HART, editor of the *British Medical Journal*, has been invited as such by the Secretary and Chairman of the Committee of the American Medical Editors' Association to be the guest of the Association at their annual meeting at Milwaukee on June 5, 1893, in a letter in which he says: "The Association of the American Medical Editors will hold its tenth annual meeting at Milwaukee—fifty miles north of Chicago—June 5, 1893, on the evening immediately preceding the meeting of the American Medical Association at the same place. As Secretary and Chairman of the Committee, it gives me great pleasure to invite you to deliver the regular address before the Medical Editors' Association, and be our guest at a dinner given to especially welcome and make you acquainted with us and our work."

MR. ERNEST HART has also received an official invitation from the President, DR. HUNTER MCGUIRE, to be present at the meeting of the American Medical Association at Milwaukee at the same date and

to deliver an address on cholera. DR. MCGUIRE, in forwarding the invitation, writes assuring a very cordial greeting, and other letters from the leading members of the Association tender equally warm and fraternal assurances.

Both these invitations have been accepted, and there is reason to believe that the occasion will be one which will afford opportunities for the mutual interchange of those professional courtesies and offices of good will which fitly express the sentiments and relations of members of our Association generally and of its officers towards the cognate bodies and towards the medical profession generally of the United States.—*British Medical Journal*.

THE MILWAUKEE MEETING.

The signs of the times indicate the near approach of the annual gathering of the hosts of medical men who constitute the active element of the American Medical Association. Already very complete programs for the several Sections are in the hands of the Section officers. In some instances we are pleased to note, special arrangements have been made to secure special discussions of papers to be read. These discussions not only add to the interest but greatly enhance the scientific character of the work of the meeting.

THE REVISION OF THE CONSTITUTION AND BY-LAWS OF THE AMERICAN MEDICAL ASSOCIATION.

At the last meeting of the American Medical Association, June, 1892, a committee was appointed to revise the Constitution and By-laws of the Association, if upon careful study they should decide that any change would advance the interests of scientific medicine. In conformity with this instruction, the committee met in Buffalo, N. Y., March 22d, and unanimously agreed to recommend to the Association at its coming meeting the adoption of the organic laws printed in preceding pages of this issue of the *Lancet*.

It is premised here that the key to these regulations is the *section work*. They are arranged so as to make this the greatest in amount, and the best in quality, possible under existing circumstances. If adopted by the Association, it will be an open declaration by that body that its watchword is hereafter SCIENTIFIC MEDICINE.

It will be noted that there is but one class of members, which has the same individual duties and the same individual obligations. The qualifications for membership are but two: *First*, good standing in some one of the State societies or some local society recognized by the State society; *second*, the payment of the annual dues. Respecting the first, the officers of each State society are made responsible; for the second, the receipt of the Association Treasurer is required. Hence if any physician brings to the Committee of Arrangements a certificate of good standing in his State medical society, and the Treasurer's receipt for dues to date, he will be admitted to active membership at once. If personally or by letter he does this same thing yearly, he can remain an active member so long as he lives. All disputes respecting doctors must be settled by the State societies or the local societies—by the society officials if possible, or

if not, by arbitration as provided for by the Code of Ethics.

To be recognized by the American Medical Association, each State and its dependent local societies must accept the Code of Ethics of the Association as expressing the principles by which the conduct of doctors to each other and to the public should be guided.

The General Business Committee has the same powers as described by the report of the committee on its formation last year. The powers and duties of the several sections, with their executive committees, are stated with considerable fullness.

The annual addresses are eliminated, as belonging to a past stage of development, and the President's address is limited to thirty minutes. After the first day the hour of meeting of the general sessions of the Association is 4:30 P.M., all the preceding portion of the day being occupied by the section work.

It is so arranged that the real thinking for the Association shall be done in small standing committees, and the general meeting shall only hear the results of such thinking, accept or reject, or return it to the committees again for farther study in certain directions. It is believed that from their representative character and relative permanence these committees will be able to consider deliberately and recommend the Association wisely, and leave all other members free to devote the entire day to section work, and the evening to social commingling.

Full and definite arrangements are made for so sifting the work done as to make it representative of the best activity of the year in all departments, and so by its quality commend it to all scientific workers throughout the world.

However, the document is given entire, for the study and criticism of every member of the profession. It is desired that it should be read and studied in the light of the statement of the last sentence of the History. This says that these documents are "formulated for the purpose of promoting the best activity of a general medical organization of the profession of North America." It will greatly aid the reaching of the best results if critics will limit themselves to the pointing out of the changes which will better promote the attainment of this great end, through a medical society.

We trust also that gentlemen will divest themselves of their local interests, and make their study in the light of the interests of the profession of an entire continent.—*American Lancet*.

THE NEED OF A UNITED MEDICAL PROFESSION.

In a late issue the *Medical Record* calls attention to the fact that the New York Academy of Medicine, by a vote of 77 to 67, decided to continue "measures which affect the public welfare." This exhibited such a feeble interest in the public good that the *Record* fears it may infect other medical societies, and so the entire group have no practical weight in shaping measures affecting public health. It calls upon medical journals to awake to the situation and seek to organize the profession into active efforts for the common good. It says that quarantine laws are but a portion of the sanitary legislation which the profession should demand of the next Congress. It says: "We must aim to secure a creation of a central public-health organization worthy of the country and of the age, and qualified and empowered to deal efficiently with the great sanitary interests of our diversified climate, our world-wide commerce, and our heterogeneous population." It "thinks that a united and concerted effort of the medical press, in connection with medical societies, can organize and concentrate

the influence of the profession more immediately and powerfully than any other or all organizations."

We desire to say "amen" to these views of the *Record*. We have the fullest faith that one hundred thousand doctors united upon a scheme of national health organization and work would at once secure the cordial coöperation of Congress in promoting the same.

But how shall it be secured? The medical press is a power, in spite of the fact that it is crippled and muzzled by commercial interests of divers kinds. In so far as we understand the situation, there is no free medical press in America worthy of the name. There are degrees of bondage, less or more, but the bondage still remains. The *Medical Record* and the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* are themselves restricted by commercial interests. Like the medical colleges, financial considerations hamper them, the fear of offense of influential firms and members of the profession. Because of this, it will be impossible to expect the medical press to speak as a unit on this or any other question.

The tendency of politicians to use medical societies for their selfish interests, was doubtless one of the reasons why so many of the New York Academy of Medicine preferred to restrict their efforts to medical science as a much safer and pleasanter method of work. Similar considerations will doubtless give a similar bent to the thinking of other medical societies.

The only really national organization the United States has ever had does not, for some reason, command the adherence of the entire profession as it should. Farther, the efforts made by its friends to enlarge its scope and power meet with indifference if not positive antagonism from those who should promote its welfare. Hence its voice is not heard above the din of selfish intrigues of the ignorant boodler politician.

We have some hope that all true physicians may in the near future see the necessity of supporting and developing this national organization, to the end that it may speak with a united voice the wishes of the profession of the United States on occasions like the present. We especially direct attention to the report which the Committee on Revision of Constitution and By-laws will present to the Association at the coming meeting in June. If they see in this any new reason to believe that under its guidance this Association can be so developed as to be in fact the voice of the entire medical profession, they should lose no opportunity in securing the adoption of this new plan by the Association, not only by vote but by actual deeds. It is impossible to combine such vastly diversified elements, scattered over such wide extent of country, without much constant thought and persistent devotion to the idea of a National Professional Unity combined with the largest individual liberty and fair dealing with each.

Such unity will come in the future, but the influence of all medical journals and societies and individual medical men could greatly hasten the day of its coming. We need it, as the *Record* says, "just now." We trust the *Record* will give its best service to securing it at once. The most thoughtful men in the profession want it, in so far as they understand the situation, and it is one of the obligations of medical journals to make the others comprehend the situation.

The time is ripe for such an organization; the elements are plastic, and as never before are awaiting the artist's hand to be moulded into such a unity as shall represent the best thinking, the noblest feeling, and the most skillful work of the profession of the entire American continent.

The need is self-evident. The means for supplying it are at hand. What physician will fail to use the materials at his command for the attainment of a United Medical Profession in North America?—*American Lancet*.

ASSOCIATION NEWS.

SECTION ON DISEASES OF CHILDREN—PRELIMINARY PROGRAM.

1. Chairman's Address.
2. Observations on Isolated Cases of Diphtheria, by W. A. Dixon, Ripley, O.
3. Some Observations in Treating Cases of Diphtheria, by G. Benson Dunmire, Philadelphia, Pa.
4. Presentation of Aseptic Intubation Instruments with Statistics of Intubation, by F. E. Waxham, Chicago, Ill.
5. The Therapeutics of Diphtheria, by F. E. Waxham, Chicago, Ill.
6. A Case of Laryngeal Stenosis Complicating Scarlatina with Remarks upon Treatment, by J. A. Wessinger, Ann Arbor, Mich.
7. The Pathogenesis of Bronchitis, by W. S. Christopher, Chicago, Ill.
8. The Pathology and Symptomatology of Acute Bronchitis and Broncho-pneumonia, by C. L. Dodge, Kingston, N. Y.
9. Some Phases of Broncho-pneumonia in Children, by J. M. C. Carter, Waukegan, Ill.
10. The Pathology and Symptomatology of Croupous Pneumonia, by F. S. Churchill, Chicago, Ill.
11. The Therapeutics of Bronchitis, by I. N. Love, St. Louis, Mo.
12. The Cold Bath in the Treatment of Bronchitis in Infancy, by Geo. C. Mosher, Kansas City, Mo.
13. The Therapeutics of Broncho-pneumonia, by F. S. Parsons, Northampton, Mass.
14. The Therapeutics of Croupous Pneumonia, by J. A. Larrabee, Louisville, Ky.
15. The Treatment of Chorea by large doses of Quinine, by W. A. N. Dorland, Philadelphia, Pa.
16. Insane Disorders in Children: their Extra-asylum Treatment, by J. Madison Taylor, Philadelphia, Pa.
17. Acute Endocarditis in Children: Etiology, Symptomatology, and Treatment, by G. N. Highley, Conshohocken, Pa.
18. Chronic Endocarditis in Children: The Pathology, Valvular Lesions, Symptoms and Treatment, by M. P. Hatfield, Chicago, Ill.
19. Pericarditis in Children: Etiology, Pathology, Symptoms and Treatment, by W. P. Watson, Jersey City, N. J.
20. The Phenomena and Causes of Gastro-enteric Fever, (not typhoid), by J. Wellington Byers, Charlotte, N. C.
21. The Importance of Early, Effective Elimination in Zymotic Diseases in Children, by J. A. Work, Elkhart, Ind.
22. Milk Infection, by V. C. Vaughan, Ann Arbor, Mich.
23. Cholera Infantum. Its Treatment in Malarial Localities.
24. Dentition and Some of its Diseases, by Marion Thrasher, San Francisco, Cal.
25. Primary Syphilis and Gonorrhœa in Children, by B. M. Ricketts, Cincinnati, O.
26. Atresia Oris, by Edward Boreck, St. Louis, Mo.
27. Etiology, Morbid Anatomy and Treatment of Infantile Hernia in the Male, by Thomas H. Manley, New York City.
28. Infantile Hernia, Dr. Wirt, Cleveland, O.
29. Paper by J. Lewis Smith, New York City, N. Y. (Subject to be announced).

THE AUSTRALIAN MEDICAL CONGRESS, recently held in Sydney, New South Wales, was very successful, over six hundred members having taken part, and one hundred and fifty papers having been read and discussed.

DOMESTIC CORRESPONDENCE.

Revision of the Constitution and By-Laws.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

The labors of the Committee on Revision of the Constitution and By-laws of the American Medical Association having been published for the criticism of members, it may be in order to examine some of the proposed changes and learn the character of their style, phraseology and spirit, and to ascertain if their formulation is distinct, if their arrangement is convenient, and if their adoption would be likely to confer any benefit upon the Association.

1. In the words of an earnest and able defender of the Code, Dr. Talley, it may be said that the revised Constitution and By-laws of a great National organization should be couched in language likely to do honor to the scholarship of its authors, and presented in a style perspicuous without dogmatism, copious without redundancy, and elegant without pedantry; plainly setting forth rules without magisterial assumption. Few if any of these requirements seem to have been fulfilled in the proposed new Constitution and By-laws, and many readers will probably be surprised that the Revision Committee, composed as it is of able men, should have prepared a document so loosely written, so inferior in style to the admirable model (the Code) constantly before its members, so incongruous, so defective in formulation, and so inconvenient in arrangement.

2. The evil intentions of the advocates of revision and disorganization are displayed, at page 345 of THE JOURNAL of March 25, 1893, in the form of an "amendment to the Constitution, to be known as Article VIII, entitled the Code of Ethics," proposed at the last annual meeting of the Association and to be acted upon in June, 1893. The apparent intention of this addition to the Constitution is that, in case of failure to secure the passage of a disfigured code of ethics or of a badly devised revision of the Constitution, the adoption of this amendment shall in reality be the abolition of the Code. Many more devices may be employed to effect the abrogation of the Code or the alteration of the consultation clause by amendments to the Constitution and By-laws, and perhaps by other dark schemes. Therefore delegates will need to be very watchful of all proceedings during the morning sessions of the Association.

3. A part of the plan of the disorganizers seems to be abolition of the Nominating Committee. The revisers have adopted this plan. If the new Constitution be sanctioned the States will be ignored and the Association will be in the hands of demagogues. This would be a grave offense against the rights of every State. For a long time past each State has been represented in the committee whose particular duty it is to nominate the officers of the Association. The assignment of this duty to the Business Committee is so manifestly wrong that any lengthened commentary thereon would be unnecessary. The Business Committee has as much work to do as it can properly accomplish, and the important duty of nominating officers, long since assigned to a special committee consisting of one delegate from each State, appears to have been performed to the entire satisfaction of the Association. This whole revision scheme seems much like a subterfuge for the abolition of the Code, and has originated in the unquiet minds of selfish men whose actions indicate that they look upon agitation as synonymous with progress.

4. It would almost be impeaching the discernment of many readers to more than allude to the multitude of other improprieties and defects in the proposed new Constitution and By-laws. It suffices to say that the revised document is far from being an improvement upon the original. More-

over, this does not appear to be an opportune time for revision. It would seem wiser to await the definite settlement of the ethical dispute. After that question is disposed of, then a committee could with propriety be appointed to revise the Constitution and By-laws. The unbecomingly precipitate action of this revolutionary movement is displayed mainly by the few who appear to wish the abrogation of the Code and the adaptation of the Constitution and By-laws to their own designs, which do not bear the scrutiny of the many members who have at heart the good of the National Association. The disorganizers assume to be the able and eminent men of the profession, but such an assumption need not necessarily convince other men that these self-selected few are thus gifted to the exclusion of all who fail to think as they do. The Association and the profession in general will doubtless listen respectfully to their instructions if they demonstrate their superiority with becoming modesty, if they do frame a better code of ethics than that of the Association, if they properly revise and arrange the Constitution and By-laws in good English, if they cease to make assertions unsupported by arguments, and if they acknowledge that it is not possible to formulate laws and moral maxims tersely and intelligibly without great preliminary training in the art of writing, ripe scholarship, and patient and persistent study. Since, however, they have failed to show that the Code needs modification, and since they have not succeeded in improving the Constitution and By-laws, in the name of the common sense of the profession let them abandon their unwise projects! May the disturbers of the peace of this beneficent confraternity soon emerge from the chaos of error into which they are plunged and seek the light of truth and reason, the discovery of which so often leads to the approval of what was before condemned; may they stifle their discordant clamors for injustice; may they turn their ardent zeal to good purposes; may they abjure these little miseries of perverted human nature that dwarf the intellect, corrupt the morals, and make men illiberal, narrow, selfish and covetous; may they then with renewed energy direct their labors to the general good, thus to subserve the interests and honor of a united profession and increase manifold their individual gain! Such are the sincere and best wishes of

A CONSERVATIVE MEMBER.

SELECTIONS.

FRONTAL HEADACHE AND IODIDE OF POTASH.—A heavy, dull headache, situated over the brow, and accompanied by languor, chilliness and a feeling of general discomfort, with a distaste for food, which sometimes approaches to nausea, can generally be completely removed by a two-grain dose of the potassic salt dissolved in half a wine glass of water, and this quietly sipped, the whole quantity being taken in about ten minutes. In many cases the effect of these small doses has been simply wonderful. A person who, a quarter of an hour before, was feeling most miserable and refused all food, wishing only for quietness, would now take a good meal and resume his wonted cheerfulness. The rapidity with which the iodide acts in these cases constitutes its great advantage.—*Alienist and Neurologist*.

WHEN ARE CURED DIPHTHERITICS SAFE?—Roux and Yersin (Pasteur's laboratory) announced some time ago that the bacillus of diphtheria may be found in the pharynx of persons who have suffered from the disease, as long as five weeks after their apparent recovery and the disappearance of the diphtheritic membrane. Since then, other equally accurate investigations have, by actual inquiries, confirmed this statement. Tobieson (*Centralblatt für Bakt. u. Parasiten*

Kunde) made examinations of forty-six cases of diphtheria, in which he found the germs of this disease at various periods after the disappearance of the membrane.—*Modern Medicine and Bacteriological World*.

THE CAUSE OF VALVE AT THE NECK OF THE BLADDER.—Opert (*Archiv für klinische Chirurgie*, Bd. 44) states the presence of a valve at the neck of the bladder, without being associated with diseases of the prostate and bladder, is not uncommon. Mercier assumed that the condition existed only in old people, and operated with the best results in over 300 cases.

Von Dittel denies the statement that it is not dependent upon prostatic hypertrophy, but believes that it is due to a spasmodic contraction of the prostatic ring or internal vesical sphincter.

Socin claims that the causes may be either hypertrophy of the bladder as a result of stricture of the urethra, or tumors of the bladder, etc., and as a result of the hyperplasia, a bundle of transverse muscle fibres is raised up, and possibly proves a hindrance to perfect micturition.

Eigenbrodt reports the case of a man 24 years of age who, since boyhood, had suffered from difficult urination, so much so that at times the urine could only be voided by great straining. Examination of the urethra with the ordinary catheter was impossible, as only the smallest soft instrument could be made to enter the bladder. The first examination of the urethra was followed by complete retention and all ordinary measures to relieve the same proved fruitless.

As a last resort the urethra was opened in the perineum, a sound was easily passed until it reached the neck of the bladder, when further attempts at introduction were resisted. A small sound with a sharp curve was next tried, and after considerable manipulation it entered the bladder; a catheter was then passed along this sound as a guide and allowed to remain in the wound. Two days later the patient died, and at the post-mortem the following conditions were found: The bladder was greatly dilated and the contained urine was purulent. The urethral orifice was covered by a transverse, half-moon shape fold of mucous membrane. This fold consisted chiefly of mucous membrane; the base being somewhat thicker, contained muscular fibres, probably a part of the sphincter muscle. The prostate was normal.—*University Medical Magazine*.

TREATMENT OF GONORRHEA.—(By Jonathan Hutchinson, F.R.C.S. London, Eng.) My treatment of gonorrhoea in all stages has for long been very monotonous. Almost without regard to stage or degree of severity, I prescribe the same remedies. I have long laid aside the traditions of my student days, which taught that salines only should be used in the acute stages, and that abortive plans were dangerous. I always use abortive measures, and mostly, I believe, succeed. At any rate, I never encounter ill consequences, and complications are rare. My prescription is a partnership of all three different remedies, and it is, I believe, important that they should all be used.

First, an injection of solution chloride of zinc, two grains to the ounce; next, sandal-wood oil capsules; and lastly, a purgative night dose, with bromide of potassium. The injection is used three or four times a day, the capsules (ten or twenty minims,) taken three times a day. The ingredients of the night dose are three drachms of Epsom salts and a half drachm of bromide of potassium. It is, I believe, the action of the last named in preventing congestion of the parts, which makes the abortive measures safe.

Moderate purgation and entire abstinence from stimulants are essential. If the case is very acute, and attended by swelling of the corpus spongiosum, I sometimes pre-

scribe tartar emetic, or tincture of aconite, but it is very seldom, indeed, that these are necessary. If the patient be well purged, there is no risk whatever in an abortive treatment from the day he comes under treatment. The risk of orchitis, prostatitis, cystitis, etc., comes in cases which have been allowed to develop rather than in those treated abortively. I should as soon think of delaying to use local measures in gonorrhoea, as I should in purulent ophthalmia.—*Lanphear's Kansas City Medical Index.*

GUAIACOL CARBONATE IN PHTHISIS.—Guaiacol carbonate is a simple, chemically pure substance, free from odor, insoluble in water, neutral in reaction and destitute of irritant effect on mucous membrane. It is not troublesome to the digestive organs, not being split up into its constituents, guaiacol and carbonic acid, until it has passed through the stomach. In the stomachs of phthisical patients, where generally there is an abnormally large quantity of saprophytic and parasitic bacteria, the compound is split up and a large amount of guaiacol set free by the fermentative processes. This arrests the development of the bacteria, and finally entirely frees the stomach from its unwelcome guests. The guaiacol set free is at once absorbed, so that even when large quantities of guaiacol carbonate are given there is no accumulation of guaiacol in the intestine. The use of the salt results in an improvement of the appetite followed by increased nutrition and body-weight, as well as by an augmentation of the general resistance of the organism to diseases. At the same time the anti-fermentative action of the guaiacol carbonate prevented the formation of gases in the intestines. Gradually the attacks of coughing lessened in violence and frequency, and the expectoration became loose and less abundant, assuming a more muco-purulent character. The fever was not directly influenced, and gradually entirely disappeared; the same was true of the night-sweats. The objective condition of the lungs corresponded to the improvement in the subjective feeling. Râles lessened and sometimes disappeared altogether; slight dullness often cleared up with surprising rapidity; in certain favorable cases large cavities steadily decreased in size within a few months, until finally they could no longer be detected. Frequent examination of the sputa often showed that the number of bacilli had diminished.—*Medical Standard.*

MISCELLANY.

THE ELEVENTH INTERNATIONAL CONGRESS OF MEDICINE.

The inauguration of the Eleventh International Congress will take place the 24th of September, 1893, in the presence of H. M., the King of Italy. The president is Prof. G. Baccelli, Rome; treasurer, Prof. L. Pagliani, Rome; secretary-general, Prof. E. Maragliano, Genoa.

The work of the congress will begin in the nineteen sections on the morning of September 25. It will be continued in accordance with the arrangements to be made and published both for the general session and the sections. Some of the general sessions will be devoted to scientific addresses delivered by scientists of all nations.

LIST OF THE SECTIONS.

1. Anatomy.
2. Physiology.
3. General Pathology and Pathological Anatomy.
4. Pharmacology.
5. Internal Medicine.
6. Diseases of Children.
7. Psychiatry, Neuropathology and Criminal Anthropology.
8. Surgery and Orthopedy.
9. Obstetrics and Gynecology.
10. Laryngology.
11. Otology.

12. Ophthalmology.
13. Odontology.
14. Military Medicine and Surgery.
15. Hygiene.
16. Sanitary Engineering.
17. Dermatology and Syphilidology.
18. Forensic Medicine.
19. Hydrology and Climatology.

REGULATIONS.

1. The Eleventh International Congress of Medicine will be inaugurated in Rome, on the 24th of September, 1893, and will close on the 1st of October.

2. Any physician may become an active member of the Congress by fulfilling the conditions of membership, inscribing his name, and securing his admission ticket.

3. Scientist of other professions who, through their special studies, are interested in the labors of the Congress, may acquire the rights and assume the duties of active members, and participate in the work of the Congress, both by communications and discussions.

4. The fee for admission to the Congress is twenty-five francs or five dollars. (Money order or check to the treasurer, Prof. Comm. L. Pagliani, Rome, Italy). It entitles to a copy of the Transactions of the Congress, which will be forwarded to the members immediately after publication.

5. The character of the Congress is strictly and exclusively scientific.

6. The work of the Congress will be divided amongst nineteen sections; every member is requested to indicate on paying his admission fee, the section for which he desires to be inscribed.

7. The provisional committee will arrange the appointment, in the opening session, of the permanent officers. They will be a president, three vice-presidents, a number of honorary presidents and secretaries. Each section will elect, in its first meeting, its president and a certain number of honorary presidents, who shall alternately take the chair during the session. Some of the secretaries will be chosen from among the foreign members in order to facilitate the recording both of communications and of discussions in the different languages.

8. There will be daily sessions, either general or sectional. The times and numbers of the general sessions, and the business to be transacted in them, will be arranged by the president of the Congress.

9. The general sessions are reserved, (a) for the consideration of the common work of the Congress and of its common interests, (b) for addresses and communications of general interest and importance.

10. The addresses in the general sessions, and in such extraordinary sessions as may be arranged, will be delivered by members chosen by the committee for the purpose.

11. Papers for and communications to the congress must be announced on or before June 30, 1893. A brief abstract of every paper and communication, with their conclusions, must be sent to the committee on or before July 31st. All of them will be printed and distributed to the members by authority of the president. Such as arrive after that date cannot be expected to find a place on the regular order of business, and will be accepted only if time will permit.

12. The business of the sections will be arranged by their presidents, who will also determine the hours of meeting, avoiding those reserved for the general sessions. Two or more sections may hold joint meetings with the consent of their presidents. There will be no vote on scientific questions.

13. Fifteen minutes are allowed for the reading of a paper or communication. In the discussion every speaker can have the floor but once, and for five minutes only. To close the discussion the author of the paper is allowed ten minutes. Additional time may be given him by the president, by special resolution of the section, if the importance of the subject under discussion appear to require it.

14. The manuscript of all addresses, papers and communications read either before a general session or a section must be handed to the secretary before the close of the meeting. A special committee on publication appointed by the president, will decide which or what part of them shall be published in the Transactions of the Congress. Such members as participated in the discussions are required to hand to the secretaries their remarks, in writing.

15. The official languages of the sessions are Italian, French, English and German. The regulations, programs and daily bulletins will be published in the above four languages. During the meetings, however, a member may

be permitted to use, for a brief remark, any other language, provided some member present expresses his willingness to translate such remarks into any of the official languages.

16. The president directs the discussions according to the parliamentary rules generally obeyed in similar assemblies.

17. Persons not classified under article 3, who are interested in the labors of a special section, may be admitted by the president of the Congress. They will receive a special ticket on paying their admission fee; will not be entitled to a copy of the Transactions; and cannot speak in the general sessions nor in any section other than that for which they were inscribed.

18. The president may invite or admit students of medicine to attend and to listen. They will be given a special admission ticket free of charge.

GENERAL INFORMATION.

Journeys and Reduction of Fares.—The provisional committee has made arrangements with the different Italian and foreign railway and navigation companies, in pursuance whereof special reduced prices have been granted on the steamers and railways of this country and of the countries which the members of the Congress are to traverse.

In Italy the members of Congress will find tickets for round trips, starting from Rome; they will thereby be enabled to visit the most important cities and the various universities. In regard to this, further notice will be given.

The ladies of the members will be furnished ladies' tickets, which will entitle them to reduced fares granted to the members, and to participate in the festivities connected with the Congress.

Festivities.—Besides the receptions which the kind and hospitable citizens of Rome will offer to the members, the Italian colleagues will endeavor to return to the best of their power, the kindness they experienced during their stay abroad.

On some evening, yet to be decided, the members of the different sections will join at a dinner, which will be given in one of the first hotels of Rome.

The Italian physicians have formed special committees to show the most hearty and kindly hospitality towards the foreign colleagues.

International Exhibition of Medicine and Hygiene.—On the occasion of the Eleventh International Medical Congress, an Exhibition of Medicine and Hygiene will be inaugurated in Rome, which will gather all that practically interest physicians and specialists. A special committee has already insured the coöperation of all the most important manufacturers of the world.

Hotels.—All the first and second class hotels of the Italian capital will afford to the members, during their stay, all desirable comforts.

THE GROSS MONUMENT.

The following circular will be mailed to the physicians in Chicago in a few days:

Dear Doctor:—The American Surgical Association at its last session adopted the following:

Resolved, That the President be empowered to appoint a committee with authority to confer with the friends and admirers of the late Prof. Samuel D. Gross, and with the profession at large, for the initiation of a movement on the part of the Association, having for its object the erection of a monument to Dr. Gross in the city of Washington, D. C.

A committee of nineteen from said Association was appointed, with authority to confer with the profession at large, and solicit subscriptions.

It is not the purpose of the American Surgical Association to claim the honor of erecting this monument to the memory of one of its most distinguished Fellows; but rather is its intention to initiate a movement in which the entire profession should feel an equal interest.

Each member of the committee above named was instructed to appoint sub-committees in his own State, irrespective of fellowship in this or any other Association, which sub-committees will aid him in the collection of contributions to the general fund. Dr. John B. Roberts, 1627 Walnut St., Philadelphia, is the Treasurer of the Association, and will receipt for, and from time to time acknowledge subscriptions through the columns of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. In the event of a failure to collect a sum sufficient to complete the monument, the contributions will all be returned to the subscribers.

Dr. Nicholas Senn, the member of the above named committee for Illinois, appointed by direction of the General Committee, the following sub-committee for Chicago, namely:

J. E. Owens, T. W. Miller, D. A. K. Steele, D. W. Graham, to collect funds for the erection of the Gross Monument.

The sub-committee takes pleasure in commending this enterprise to your favorable consideration, and solicits such a cash subscription as you may find it convenient to immediately pay to Mr. W. J. Stephenson, of Stephenson & Co., physicians collectors, our authorized solicitor and collector; or such an amount as you may enclose at your convenience during the next thirty days to Mr. W. J. Stephenson, room 215, 85 Dearborn St., or to Dr. John E. Owens, 1806 Michigan Ave., or to any other member of the sub-committee. At the expiration of the thirty days our collector will again call for such subscriptions as remain unpaid."

We have the honor to be very respectfully,

JOHN E. OWENS, }
T. W. MILLER, } *Sub-committee.*
D. A. K. STEELE, }
D. W. GRAHAM. }

MISSOURI STATE MEDICAL ASSOCIATION.—The Missouri State Medical Association will meet at Sedalia, Mo., May 16, 17 and 18. An attractive program has been prepared. Delegates to the American Medical Association will be elected.

THE PAN-AMERICAN MEDICAL CONGRESS. SECTION ON DISEASES OF CHILDREN.—The organization of this Section is complete and the work of arranging a program is well advanced. Numerous valuable papers have been promised and the success of the meeting is assured. Physicians interested in diseases of children are cordially invited to attend these meetings, which give promise of great interest both to the specialist and general practitioner. Any American physician desiring to read a paper will please communicate at once with the Secretary, who will be pleased to furnish all needed information.

Executive President.—Dr. John M. Keating, Colorado Springs, Col.

Secretaries.—Dr. F. M. Crandall (English-speaking), No. 113 W. Ninety-fifth St., New York City; Dr. Damaso Lainé, (Spanish-speaking), Media, Pa.

Honorary Presidents.—Drs. S. S. Adams, Washington; A. D. Blackader, Montreal, Canada; Samuel C. Busey, Washington; Charles Warrington Earle, Chicago; F. Forchheimer, Cincinnati; L. Emmet Holt, New York; A. V. Meigs, Philadelphia; W. P. Northrup, New York; J. O'Dwyer, New York; C. I. Putnam, Boston; T. M. Rotch, Boston; J. Lewis Smith, New York; Louis Starr, Philadelphia; J. E. Winters, New York; Jesus Valenzuela, City of Mexico, Mexico; I. N. Love, St. Louis, Mo.

Advisory Council.—Drs. Wm. D. Booker, Baltimore; Augustus Caillé, New York; Henry D. Chapin, New York; J. P. Crozer Griffith, Philadelphia; M. P. Hatfield, Chicago; August Seibert, New York; Charles W. Townsend, Boston; Thos. S. Latimer, Baltimore; J. H. Ripley, New York; Jerome Walker, Brooklyn; Wm. Perry Watson, Jersey City.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from April 1, 1893, to April 7, 1893.

Major Augustus A. De Loffre, Surgeon, will be relieved from duty at Columbus Bks., Ohio, upon receipt of this order, and will report in person to the commanding officer, Ft. Logan, Col., for duty as post surgeon at that station. By direction of Secretary of War.

Capt. Edwin F. Gardner, Asst. Surgeon U. S. A., leave of absence granted for seven days is extended twenty-three days.

OFFICIAL LIST OF CHANGES in the Medical Corps of the U. S. Navy, for the Week Ending April 8, 1893.

P. A. Surgeon Oliver Diehl, detached from U. S. S. "Essex." Asst. Surgeon E. M. Shipp, ordered to Naval Hospital, Boston, Mass.

The Journal of the American Medical Association

VOL. XX.

CHICAGO, APRIL 22, 1893.

No. 16.

ORIGINAL ARTICLES.

CASES ILLUSTRATING THE VARIOUS FORMS OF CHRONIC DIFFUSE NEPHRITIS; MITRAL REGURITATION FOL- LOWING ACUTE RHEU- MATISM.

Clinical lecture delivered

BY JAMES M. ANDERS, PH.D., M.D.,

Professor of Clinical Medicine in the Medico-Chirurgical College, also
Visiting Physician to the Episcopal Hospital, and the Phila-
delphia Hospital.

Chronic Diffuse Nephritis.—J. R., thirty-three years of age, single, a worker in the gas house, near the fire, where he is much exposed to becoming overheated and to draughts, comes to us with the following history. Family history negative. When thirty years old, he had typho-malaria fever, and since this attack he has never been quite well. Soon afterward he developed rheumatism in the left knee, of a sub-acute type—not having the fever, sweats, etc.

Six months ago he began to complain of pain in the right knee: at the same time the left leg began to swell around the knee, which extended downward to the foot. Two weeks ago there was present, as there is now, much œdema—especially of the right leg. One month ago his abdomen began to swell.

He says he would feel perfectly well now if it were not for the presence of some dyspeptic symptoms. You notice a peculiar pallor of the skin, which latter is also harsh and inelastic, as shown by pinching up a fold, which as you see returns to its former condition slowly. This is common to persons suffering from kidney trouble. He has no heart complications, as there exists no evidence of hypertrophy, and no murmur. His urine contains albumen, also a few hyaline and granular casts.

In these cases you frequently get no history of acute diffuse nephritis with rigors, fever, bloody and scanty urine; but, as in this instance, the trouble is chronic from the first, and begins insidiously. The different varieties of nephritis are much confused, many names being given to designate the same condition. There is a form of nephritis in which the epithelial lining is affected, having a history much like this, but without the occurrence of rigors, fever, bloody urine, and coming on insidiously with albumen and casts. It is known as chronic parenchymatous nephritis. Frequently it exists for a long time before it is made manifest by the occurrence of dropsy. The outward appearance of a patient is, however, no evidence of the amount of kidney lesion. There is one element in the causation of the effusion in this case which as yet has not been investigated. Gentlemen, cirrhosis of the liver is frequently associated with chronic diffuse nephritis, although this man tells us he has not been a steady drinker,

yet as there is much effusion in the peritoneal sac I shall make physical exploration of his abdomen, and shall probably find evidences of cirrhosis. On inspection we find enlargement of the abdominal veins which is one evidence of cirrhosis of the liver. Percussion gives normal boundary of dulness above. By placing the patient on his left side, thus allowing the fluid to gravitate to the opposite side, we have tympanitic resonance extending one inch above the costal border, showing a contracted condition of the liver. When you are able to feel the anterior surface or lower border of the liver by making deep palpation (and you should always make the attempt), the organ will feel finely nodulated. I have not succeeded in reaching the liver in this case. The condition of cirrhosis of the liver, together with the other clinical features of this case, point clearly to the fact that we have here to deal with a case of chronic interstitial nephritis.

In these cases, at first, the prognosis is moderately good, but it becomes gradually more and more grave. Many symptoms are ascribed to kidney trouble which do not belong to it. When treating these cases, do not direct your remedies to the kidney lesion, but to the symptoms arising from the kidney trouble and to the indications not dependent on the kidney trouble. For the kidney lesion little can be done. The tinctura ferri chloridi combined with hydrarg. bichloridi often diminishes the amount of albumen and casts, improves the condition of the blood and relieves the anæmia, which is often pronounced. The chloride of gold and sodium, has yielded excellent results with me in a certain proportion of these cases. Among the symptoms arising from the kidney lesion dropsy is the most pronounced, as in this case. This is sometimes due to disturbed circulation. The dropsy is most effectually removed by producing free purgation; this, so far from being debilitating, is often comforting to the patient. Diuretics may also be given, generally. The old combination of comp. jalop powder, grains ten; calomel, grains five (given at night, is most effectual), can be used when the heart is unaffected. This I shall order for the present case, to be given at night. Additionally, I will prescribe a pill contain-

R. Ex. digitalis, gr. 1-12.
Arsenic, gr. 1-24, powd.
Scilla, gr. 1/2.

Sig. To be given three times a day.

Often, gentlemen, organic heart lesions are associated with chronic nephritis. There are those cases in which the heart trouble leads to nephritis, by producing first congestion of the kidney which finally passes into chronic diffuse nephritis. Secondly, those cases in which the heart disease follows the kidney lesion, more especially, hypertrophy of the left ventricle. Thirdly, those cases in which there

is chronic diffuse nephritis and chronic valvular disease in the same case, but the one not dependent upon the other. In these cases it is hard to tell which was the primary disease and equally hard to separate the symptoms of the one from those of the other. An example of the latter class I shall now show you.

Case 2.—M. R., aged forty-three years, is a house-keeper. Her family history is negative. One brother has had a slight attack of rheumatism, though neither of her parents were so affected. Her personal history is interesting. She was perfectly well until nine years ago when she had influenza; this was followed by the falling out of her hair and by inflammation of one eye. Six years ago, while living in Brooklyn, there appeared suddenly œdema of her limbs, which gradually traveled over her whole body. This attack was not preceded by rigors, fever and bloody urine. With the œdema, however, there occurred nausea, vomiting and headache from which she had suffered for many years; but more especially since the occurrence of the œdema six years ago. Under treatment the œdema almost entirely disappeared, some little lingering in the feet. During the four years following that first seizure she had no less than three similar attacks, recovering almost completely from the œdema and nervous symptoms after each subsequent spell. Last fall she caught cold which was followed by considerable swelling of the limbs, and later, of the abdomen. She also had much cough and great dyspnoea, with severe headache. Her urine contained albumen, though casts were not found on the first examination. The history, together with the œdema present, point to chronic diffuse nephritis. She has, however, an irregular action of the heart, with a mitral regurgitant murmur. It would be hard to determine whether the heart or the kidney lesion was the primary affection, as the disease has lasted so long, and is, at the time of our examination, so far advanced. As a result of the chronic valvular disease there is here venous stasis of all the organs, leading, among other features, to cough and dyspnoea, which was an alarming symptom when she first presented herself here for treatment. Congestion of the kidneys may have led to the chronic diffuse nephritis. From the clinical history of this case, however, it would appear that the chronic nephritis was the antecedent condition. When the question of the primary affection cannot be definitely settled, we should look upon the two diseases as occurring independently of each other. Many seemingly serious cases of cough and dyspnoea with pronounced dropsy are improved by a regulation of the circulation. In treating this case the same course as indicated in the other patient would be applicable. The œdema must here be treated by mild purgatives, because of the heart complication; elaterium, grain one-sixth, will be given every second or third day; tinc. ferri chloridi for the albuminuria and blood. The heart lesion can be improved by digitalis, which will cause slower, more regular, as well as more powerful contractions of the heart, thus also allowing more time for nutritive changes to take place in the cardiac muscle, and increasing the arterial tension.

B. H., aged twenty-three years, a farm hand, gives us the following history: His mother had rheumatism six or seven years ago; otherwise family history is negative. Patient had never been ill until last

March, when he had rheumatism. He has also noticed for some time that his limbs have been swollen during the day, which swelling, however, has not affected his joints. The swelling would entirely disappear during the night. This fact points to cardiac dropsy, though it may be due to renal trouble. At the present time, he also experiences some pain in the joints while at work; pain exists also when it rains or the weather is cloudy—a common fact in so-called rheumatic troubles—showing that there still is a rheumatic diathesis present. Further, there is some palpitation of the heart, which, however, has been present before, but has been made worse, since the rheumatic attack; slight cough exists, but no noticeable shortness of breath. With these few symptoms present we may find serious cardiac disease existing on making physical examination. Hence it is always necessary to make a careful examination in these cases. If after such an investigation we detect no lesions, we may safely infer that he had been troubled with functional heart complaint before, as well as since, the onset of the rheumatism. Inspection shows the cardiac impulse to be somewhat exaggerated and extended; one evidence that there is some degree of enlargement of the heart. On palpation the apex beat is found to be marked, and more extended in all directions than normally. There also exists a thrill, which indicates a regurgitant lesion; it is systolic in rhythm, and felt over the apex.

On percussion, cardiac dulness begins at the fourth rib, extending thence to the left, to a point a little beyond the nipple line, showing but slight enlargement. Dulness is not extended far beyond the mid-sternal line, so that there is but little enlargement of the right ventricle, nor would any be expected from so short a history.

Auscultation reveals a systolic murmur taking the place of the first sound, continuing up to the second, indicating a mitral regurgitant lesion. There may have existed here a chronic endocarditis, which would then complicate the recent rheumatic lesion, making the latter difficult of diagnosis.

This patient's urine contains a considerable quantity of albumin, and a few tube casts. So long as compensation is not broken, so long the prognosis is favorable in cases of mitral regurgitation. In this patient's case, however, there has been some failure of compensation, as shown by the presence of œdema and other symptoms, the renal lesion being secondary. In the case before you, then, the prognosis is grave; and yet, contrary to the old view, that once secondary dilatation comes on, it cannot be overcome—the prognosis is not positively bad; since, under proper treatment, the disturbed balance between the cardiac lesion and the circulation can be restored and the case progress favorably for a considerable length of time.

In the treatment of this patient's condition, much can be done. As a consequence probably of the rheumatism, there exists anæmia, as shown by the pallor of the tongue, lips and conjunctivæ. The first object to be attained is to improve the condition of his blood, then to regulate the force and frequency of the cardiac contractions. For the blood iron is to be used. For the heart there are various drugs, among them being strophanthus and digitalis. We will give him digitalis. The action of digitalis must, however, be watched, by observing the effect on the urine. If the amount of urine is increased the drug

is doing good. Both indications will be met by the use of the following pill:

- R. Ext. digitalis, grain $\frac{1}{8}$.
 Ferri sulph. exsic., grain 1.
 Ext. nucis vomice, grain 1-12.
 Acid arsenici, grain 1-24.
 S. To be taken three times daily, after meals.

CATARACT OPERATIONS.

Clinical lecture delivered at the Illinois Charitable Ear and Eye Infirmary, January 4, 1893.

BY W. T. MONTGOMERY, M.D.,
 OF CHICAGO.

On account of the holidays we have an accumulation of cases for operation to-day and among them several cases of cataract. This will be our subject to-day. We have cases illustrating different phases of this disease, and will present them and speak of them as we go along.

Case 1.—We have here first a patient who had double cataract. James S., aged 64, farmer, was first admitted into the infirmary nearly two years ago with mature cataract in right eye and immature in left eye. I then made a simple extraction on the right eye, leaving as you see a round, natural pupil. When I illuminate the area of the pupil by focusing the rays of light by means of this strong double convex lens, you will see stretching across the pupil a grayish white band. That is the remains of the capsule, and interferes more or less with his vision. He has, however, been able to see and get along very comfortably with the cataract glasses since the operation. But now he has returned with mature cataract in the left eye. On account of this band of capsule in the right eye, will to-day simply divide it with the needle and probably by next week perform extraction on the left eye.

The right eye in this case illustrates what is known as capsular or secondary cataract. The capsule or shell of the cataract is left in the eye, but in most cases where the extraction is made with an iridectomy the capsule is so freely lacerated that it curls up beneath the iris out of the pupil. In extraction without iridectomy or simple extraction, as was made on this eye, the capsule is not so freely lacerated and in a large per cent. of the cases a secondary operation is required. The best time to perform this secondary operation is within from three to six weeks after the first operation. The reason it was not made in this case was because sufficient time had not elapsed before the patient returned home. This needle or secondary operation is very simple indeed, but is not devoid of danger. The pupil is widely dilated, with a one per cent. sol. atrop. sulph., and the eye has been rendered anæsthetic by two or three instillations of a four per cent. solution of cocaine. The lids are separated by the speculum, the globe is fixed by forceps, and the cornea is penetrated with Knapp's sickle needle and the band is divided, care being taken not to drag forcibly on the iris or plunge the needle deeply into the vitreous. Now that the membrane has been divided the needle is quickly withdrawn so as to permit as little escape of aqueous as possible. The one per cent. solution of atropia is again instilled into the eye, the bandage applied, and the patient will be kept quiet for the next twenty-four hours. If there is then no reaction, the bandage will be left off and the eye protected by the student's shade.

Case 2.—J. D. M., aged 35, fireman. Cataract, mature, in right eye, left eye normal. It is unusual to get cataract in one eye at the age of thirty-five in a healthy person unless it is the result of an injury. There is no history or trace of injury in this case. No matter what the cause has been this man is here with a mature cataract in one eye while the other eye is perfect and he wants to know what can be done for him? What can we do for him? Is it advisable to operate for the removal of cataract from one eye while the other is perfect? There are arguments both for and against the operation in such cases. In my judgment the points are decidedly the stronger in favor of the operation if the cataract is uncomplicated. Testing this case in the dark room we find his perception of light is good and that his fixation is good, that is, he sees the light equally well from any direction from which it is thrown into the pupil. I need not remind you that cataract is a disease of the lens, rendering it opaque, and when it is removed the eye is minus its lens, and that vision will be imperfect unless this is compensated for by a strong double convex lens placed in front of the eye.

The indistinct vision of the eye operated upon is, in some cases, confusing to the good eye, and it is impracticable to wear the strong lens on one eye. This is the strong point against the operation. On the other side, a person with one eye has a blind side and is much more liable to accident on the street. Removing the cataract in a case of this kind restores the blind side and so enlarges the field of vision. The eye operated on will be in reserve for the future.

If anything happens to the good eye, adjust the proper cataract lens and it is ready for service. Again, the operation gets rid of the deformity and this is an important matter to young persons.

Now, as we have decided to operate, what operation shall we make? Extraction, of course; and simple extraction is decidedly the best operation, for it leaves a round natural pupil to match that of the other eye.

For the last three years my practice has been to attempt simple extraction in all cases of uncomplicated cataract where extraction was indicated. If the cataract is not readily delivered through the pupil without bruising of the iris, I do not hesitate to make the iridectomy, converting the simple extraction into extraction with iridectomy. This eye has been cocaineized with a fresh 4 per cent. solution of cocaine. The instruments, except the cataract knife, have been immersed for a few minutes in boiling hot water. The knife-blade has been immersed in alcohol and wiped with a soft bit of linen, and its point and edge have been tested. The closed eye has been sponged off externally with a saturated solution of boracic acid. I do not put the solution into the eye because the conjunctiva is healthy, and I consider the healthy secretions of the eye the best antiseptic for it. The incision includes about one-third of the cornea, and is made as nearly as possible entirely through the sclero-corneal junction. The capsule is opened with the cystotome and the cataract is readily extracted through the pupil, and this has resumed a central position. The blood is removed from the eye, and the edges of the wound are accurately coaptated. One drop of a solution of eserine sulph. gr. i to 3i, is instilled into the eye. The lids are closed and a bit of soft linen moistened in the boracic acid solution is applied, then just sufficient absorbent

cotton to even up the orbital depression, and lastly the gauze bandage. This consists of ordinary mosquito netting, cut one and three-fourths inch broad, and four yards long. It is applied moist, and the starch in it is sufficient to set it and hold it in place. This dressing is light and comfortable, and keeps its place the best of any I have tried. It is the dressing that has been almost exclusively used in this infirmary for the past eight years. The patient will be put in a moderately darkened room and permitted to sit up or lie down as he feels inclined. He is permitted to use his good eye just sufficient to help himself. If the eye which has been operated on remains comfortable the dressing will not be removed until the third day. Then the dressing is changed, a drop of the 1 per cent. solution of atrop. sulph. is instilled between the lids. This is repeated the fifth day and the seventh, when we usually find the wound closed, and we substitute the shade for the bandage and permit the patient to leave his room.

Case 3.—J. W. C., age forty-six. Carpenter, cataract, right eye immature, left eye incipient. The vision of right eye first began to fail three years ago, and this failure has slowly increased until now the patient can only count fingers at five feet in a good light. The left eye first began to blur eight months ago, and at present he can count fingers at twenty feet. Eyes otherwise healthy and general health good. Here we have a man in the prime of life, in good general health, with a family dependent upon him and who is anxious to work, but who, while he can yet see to get around, is practically blind so far as working at his trade is concerned. He has come here for relief. Medical treatment will not arrest the formation of his cataracts, nor clear his vision. Surgical interference for their removal is not indicated in the condition they are in at present. Then what can be done for him? But before we answer this question, I will define what is meant by the terms incipient and immature as applied to cataract. In senile or hard cataract the progressive changes which occur are divided into four stages. *First*, incipient; *second*, immature; *third*, mature; *fourth*, hypermature. Cataract is incipient from the first appearance of opaque spots or lines in the lens up to the time when there are no longer any transparent spaces between these opaque portions, so that the details of the fundus of the eye cannot be seen with the ophthalmoscope. By immature is understood that degree of opacity beginning with the ending of the incipient stage to a point short of complete opacity of the lens. As long as the opacity of the lens is not complete, the iris casts a shadow upon it. This comes from the opaque portion of the lens, upon which the iris-shadow falls, lying some distance behind it. The shadow is best seen by placing a light to one side of the patient and near the eye. Vision in this stage varies from ability to count fingers at fifteen or twenty feet to simply being able to count them in a good light near to the eye. Cataract is mature or ripe as soon as the entire lens becomes opaque. As a rule vision is reduced to seeing the motions of the hand or the direction of a light. After cataract has been mature for one or more years degenerative changes begin to occur. Then the fourth or hypermature stage is reached.

The time for operative interference is as soon as possible after the cataract is mature. That stage has not been reached by either eye of the patient

before us. Now, there is one of two things that we can do in a case of this kind. One is to send the patient home, to be a burden on his family, it may be for two or three years, until his cataract matures. The other is to make some one of the operations for maturing cataract upon his right eye. This is one of a class of cases in which such an operation is not only justifiable, but is positively indicated. We will make the operation for ripening on the right eye now. The operation I prefer is known as Förster's operation for maturing cataract. The eye is prepared as for extraction. The incision is made with the triangular keratome through the upper sclero-corneal junction and a segment of the iris removed. Now, while the anterior chamber is empty, we gently knead the lens by pressing with a rotary motion upon the cornea with the knuckle of this strabismus hook. Any smooth blunt instrument can be used for this. The precautions which it is most important to observe in the performance of this operation are: *First*, confine the trituration to the area of the pupil and coloboma, so as not to pinch or bruise the iris. *Second*, do not make too much pressure, or you may dislocate the lens. *Third*, keep the cornea moist while the trituration is being done. I have performed this operation more than fifty times, and have not had any severe reaction in any case. As a rule, eyes have recovered from it as quickly as from a simple iridectomy. In a few cases there was not any appreciable effect upon the cataract, but in a large per cent. of the cases there was marked increase of the opacity by the next day, and in a number I was able to make extraction successfully at the end of two weeks. This eye will be dressed the same as after extraction, and the patient kept quiet for two or three days. If there is no reaction the shade will be substituted for the bandage, and the atrop. solution dropped in the eye once daily until all redness has disappeared.

Venetian Building.

MINERAL WATERS CRUDE AND REFINED.

BY H. D. DIDAMA, M.D.,
OF SYRACUSE, N. Y.

An examination of the analyses of the various mineral waters of the United States and elsewhere, seem to warrant these statements:

1. Many of the waters, like those of Saratoga, Carlsbad and Crab Orchard, contain a cathartic salt in such quantity that from half a pint to a quart of the beverage will act as an efficient laxative. One excellence of these purgatives is that they can be taken daily for an indefinite period without injury.

2. The activity of a salt designed to move the bowels is much impaired by excessive dilution. A saline solution, whose specific gravity is less than that of serum, passes by osmosis largely into the blood and out at the kidneys, instead of drawing water from the circulation and acting as a laxative.

3. Many, indeed most of the really valuable natural, crude, mineral springs contain ingredients which in quantity or quality are detrimental. The famous Sprudel Spring and many others, whose active principle is Glauber's salt, have too large a percentage of lime. The Saratoga waters contain too much sodium chloride, as well as calcic salts. The aqueous beverage now indulged in by Syracuse people at home (soon to be displaced by the sparkling

and bright Skaneateles Lake water) is decidedly hard. But it contains only two and a half grains of lime salts in a pint, while Congress and Hathorn contain respectively more than twelve and fourteen grains. Apropos of these waters, it may be remarked that Congress has nine grains of carbonate of magnesia and fifty grains of common salt in a pint. Hathorn has but three more grains of the magnesium salt and thirteen grains more of the sodium chloride. And yet the genial and reverend Theodore Cuyler, who summers at a sanitarium in Saratoga, ventures the assertion that "Hathorn water is as pungently drastic as high Calvinism; but the Congress Spring has a somewhat milder quality, about like the modified Calvinism recommended by the revision committee. Congress water is about the right thing after all for a regular morning potation."

Lithia Springs contain the material from which their name is derived in such minute quantity, that a person must imbibe one or two gallons of the water to obtain a medium dose of the medicine.

4. An ideal—artificial—refined water, which shall not contain objectionable ingredients and which shall possess in a concentrated form all desirable qualities at a reasonable price can be manufactured by any capable chemist.

The Virginia Buffalo Lithia Springs have but two grains of lithium salt—with thirty-nine grains of lime—in a gallon; while an artificial lithia water (called, funny enough, "Hudor water") contains forty-six grains of lithia in a gallon, with all faulty and useless substances left out. So that this artificial product, when lithium is required or desired (one gallon being equal to a barrel of Virginia water) is immensely superior to the crude natural variety.

5. But it is well enough to remember that no salt of lithium is equal in its solvent power over uric acid to the same quantity of citrate of potassium.

6. Vaunted Springs, which like the Poland and others, contain hardly an appreciable amount of any mineral (the Poland having a total of about three grains to the gallon, two-thirds of this being lime and silica) may still be beneficial if used in the enormously large large quantities directed and urged by their proprietors.

Their location may be where the air is invigorating and germless; where the weary invalid is liberated from the care of business, relieved to some extent of the deceitfulness—certainly of the plethora—of riches, and flushed out every few hours with an amount of fluid for which he never dreamed he had a capacity.

Divesting himself of prejudice, he would probably find that an equal quantity of pure water at home would (so far as the water is concerned) be equally beneficial. And (it is well to consider) the pecuniary condition of the average patient will not allow the luxury of a distant journey, and a board bill of five dollars a day.

7. The notion that the natural heat of the earth imparts to water any virtue which could not be derived from solar or stove heat has no scientific nor experimental foundation. Natrium iodidum is known to be a potent weapon in the armamentarium of the Hot Springs medicine man.

The writer has never sent a patient to the National Calidarium, but he has treated with satisfaction several who have returned unbenefited from that popular but somewhat compromising resort.

CALCIUM SULPHIDE IN THE TREATMENT OF PULMONARY TUBERCULOSIS.

BY EDWARD F. WELLS, M.D.,
OF CHICAGO.

In this paper the profession is invited to consider anew the claims of an agent in the therapeutics of pulmonary tuberculosis—one which has long attracted and held my attention and in which I take great present interest. I refer to sulphide of lime—or as dispensed, sulphuretted lime—or other agents which liberate sulphuretted hydrogen in the system.

My attention was first drawn to this subject in 1883 by the following case:

Case I.—Mrs. P., aged thirty-six, of phthisical family, came under my care in 1883, with the ensuing very interesting history:—Eight years previously she had an attack of a peculiar form of herpes zoster, affecting the left side of the forehead and face and the infra-clavicular portion of chest. Severe ulceration resulted, with the occurrence in the vicinity of numerous superficial abscesses, and fourteen weeks elapsed before cicatrization was completed. Subsequently she had several attacks, affecting the same regions and always giving rise to a crop of furunculi and tedious ulceration. She was the mother of several children, the youngest eighteen months old. During her last pregnancy she had a slight hæmoptysis. Following this and after her confinement there appeared cough, further hæmorrhages, anemia, shortness of breath, muco-purulent expectoration, night sweats, emaciation, loss of strength, etc. There had been no attack of herpes for nearly two years and she had not menstruated for five months.

Her pulse was about 100, irrespective of position, but exertion raised the rate and developed palpitation. There was a well marked cervical murmur. The respiration rate was twenty-eight when at rest, increased one-half or more on exertion. Temperature elevated from one to three degrees. There was infra-clavicular and apical dulness, most marked on the right side. In these regions and above the scapula there were râles, with prolonged expiration of tubular quality. Here and there moist râles would broaden out, suggestive of gurgling, but cavities could not be demonstrated. The expectoration was, in the morning, thick and quite characteristic. Her weight was 104 pounds.

Soon after coming under my observation an abundant eruption of herpetic vesicles appeared, which went on to supuration and the development of small abscess as on previous occasions.

It was at this time and under these circumstances that she was given one-fifth grain of sulphide of lime every three hours. When seen after a week she said:—"For three days the expectoration was increased after which it became markedly diminished; my cough is better and the night-sweats have ceased." The remedy was continued thrice daily, until the abscesses ceased to appear, a period of several weeks, when it was suspended. After this fever gradually developed, the cough became more severe and night sweats reappeared and, at the request of the patient, the sulphide was resumed, with a repetition of the previous experience. For a few days the expectoration was increased, followed by diminution and improvement in the general symptoms. Subsequently it was appealed to—and never in vain—when ever the cough became heavy, with a sensation of fulness in the chest, fever and night sweats.

The general treatment was varied to meet changing conditions and the symptoms gradually improved until after eighteen months of treatment she had so far recovered as to consider herself well. Early in 1886 I examined the patient and made the following note:—"She has the appearance of health and weighs 130 pounds, a weight never before attained. Pulse sixty-eight lying and eighty standing. Her breathing ranges from sixteen to twenty. There has been no cough for a year and no expectoration for eighteen months. Resonance is not noticeably impaired and, aside from slight roughness on inspiration and a faint tubularity on expiration, together with slight intercostal recession below the right clavicle on inspiration, there are no physical signs." This lady was in good health in July, 1888.

Following this I fell into the habit of prescribing sulphide of lime in those cases of phthisis in which were present in combination copious purulent expectoration.

toration and an elevated corporeal temperature. The frequency—I may say uniformity—with which the febrile symptoms quickly subsided, and the character of the expectoration altered and its quantity diminished, were so striking that I was led, under these circumstances, to appeal to this drug with gradually increasing confidence in the large number of cases then coming under my care.

With this preliminary experience the advent of the Bergeon treatment found my mind in a very receptive mood, and I took it up with enthusiasm. To be sure I never expected from it more than any mode of management can accomplish, and my experience was therefore satisfactory. I soon discovered, however, that sulphuretted hydrogen, *per anum*, effected exactly what sulphide of lime, *per os*, had previously done for me, and no more. I therefore soon resumed my former practice, broadened and confirmed in its efficacy.

While yet employing Bergeon's method, and thinking there might be some special advantage in introducing into the system sulphuretted hydrogen in a free state, I began the use of mineral waters containing this gas in large quantity, and have continued the practice to the present time. The results of this line of treatment have been equally marked and in the same direction as those above mentioned. Several practical objections, however, have been encountered, one of the most common being the difficulty patients meet with in taking the waters for any great length of time without engendering disgust. On the whole my experience with waters of this class has been quite satisfactory, although I have not been able to convince myself that they are superior to the use of sulphide of lime, yet I find myself prescribing them in suitable cases whenever practicable.

Case 2.—A young business man, aged twenty-two, with a family history fairly bristling with instances of phthisis, came under my notice December 7, 1889. Two months previously he had had slight hæmoptysis, followed by cough, which in the morning was severe and accompanied by a tenacious muco-purulent expectoration very difficult of extrusion. Fleeting thoracic pains were prominent. There were present, especially marked above the scapula on the right side, roughened inspiration and prolonged expiration and, on deep inspiration, fine crackling. During the two months he had had two febrile attacks of short duration. He began the use of Martinsville waters in large quantities and continued them for nearly a year. His symptoms gradually declined and the expectoration, which was at first augmented in quantity and laden with bacilli tuberculosis, soon ceased and the cough, after abortive attempts, permanently disappeared in April. He continues well.

Case 3.—A young lady, aged 27, consulted me last July with the following very suggestive history:—Puberty occurred at 11 years. At 15 the menses disappeared and were absent for fourteen months, and at this time she was considered as having pulmonary consumption, she having had a cough, purulent expectoration, night sweats, hæmorrhages, emaciation, etc. After several months she was taken to one of the Kentucky sulphuretted springs, where, under the free use of the waters she gradually but completely recovered. There are now no evidences of previous pulmonary disease.

Sulphide of lime—or more correctly, as dispensed, sulphuretted lime—administered in doses of from one-fourth of a grain to one grain thrice daily to a tuberculous patient will usually produce the following results:—*a.* If there is scanty and difficult expectoration, with elevated temperature and night sweats, free and easy expectoration, with reduction of the fever and cessation of the night sweats, is speedily brought about. *b.* If there is present a free muco-purulent expectoration it is for a few days greatly

increased in amount and is rendered more purulent. In either case after a few days the expectoration diminishes in quantity and becomes less purulent, with a corresponding improvement in the patient's general condition. That these effects are due to the drug in question and not to coincidence may be readily demonstrated by even a limited clinical experience.

I usually prescribe sulphide of lime for the cases under consideration in combination with strychnia and arsenic as in the following formulæ:—

R. Calcii sulphurata, gr. xv.
Strychnine sulphas, gr. j.
Acidum arseniosum, gr. jss.
Ulmus, pulv., q. s.

℞ ft. capsul. No. LX et sig.:—One or two capsules three times a day.

R. Calcii sulphurata, gr. xxx.
Strychnine sulphas, gr. j.
Acidum arseniosum, gr. jss.
Ulmus, pulv., q. s.

℞ ft. capsul. No. LX et sig.:—One or two capsules three times a day.

Inasmuch as the object aimed at in prescribing sulphide of lime is to introduce into the system sulphuretted hydrogen, it is of prime importance that the drug be prescribed and manipulated in such manner that its activity shall remain intact up to the time of its administration. It is for this reason that the druggist should be directed to encapsulate the powder *dry*. The powdered elm is introduced into the formula for the two-fold purpose of insuring dryness of the powder and preventing a too rapid elimination of the gas when the medicament has reached the stomach.

Other medicinal agents are employed to meet special indications and no plan of management is persisted in when experience shows it to be useless or detrimental in the individual case. The diet and regimen are carefully supervised and, whenever it can be consistently done, the patient's hopes and anticipations are fostered and sustained. In short, this paper is offered in a spirit of conservatism as a tribute to the value of *one* of the many useful means of combatting phthisis—the greatest scourge of the human race.

A COMBINED WATER AND ALBUMEN METHOD OF FIXING PARAFFIN SECTIONS ON THE SLIDE.

BY A. P. OHLMACHER, M.D.,

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Ever since anilin staining methods have been in vogue, there have been demands for a perfect method of fixing sections of tissue on the slide, preparatory to the staining. This demand has arisen from two conditions peculiar to anilin staining processes. The first condition is that only *sections* of tissue can be stained by any of the processes thus far perfected; that is, it is impossible to stain a piece of tissue in the bulk with the anilin dyes, as can be done with carmine and hematoxylin. The second condition is, that the sections are often so delicate that they are torn or lost in the manipulations required in the process of staining in the watch glass. To meet these difficulties, it has long been the practice of microtomists to secure the sections to the slide;

this procedure being termed, "fixing sections on the slide."

Numerous methods of fixing sections on the slide have been proposed, and in these methods various adhesive mixtures (technically called "fixatives") have been employed. For instance; collodion, shellac, gutta-percha or caoutchouc, gum arabic, gelatin, egg albumen, etc., have been used in a variety of combinations by various workers. These "fixatives" have many functions aside from those performed in anilin staining, and for certain purposes, each of these mixtures has its peculiar merits. An excellent summary of these methods is given by Lee.¹

For the purpose of fixing sections of paraffin imbedded tissue on slide, preparatory to anilin staining, the albumen fixing method as devised by Dr. Paul Mayer² has, until the last year, enjoyed a deserved preference. Mayer employed a mixture of egg albumen and glycerine, as the adhesive medium. This was painted on the slide by a fine brush, the sections were placed in position, the slide gently warmed until the paraffin melted when the section was securely fastened in position, and the succeeding steps in the preparation could be concluded without fear of displacing or tearing the section. While this albumen fixative has many points of excellence, there are, nevertheless, some serious drawbacks to its use, as must be the verdict of every one who has employed it. In the first place, it is exceedingly difficult to *flatten* delicate sections when once they are placed on the layer of albumen; this being particularly true of sections which have become folded or wrinkled during the cutting, and with ribbons of delicate sections. Again, it is almost impossible to change the position of a section after it has fallen on the slide, without danger of serious damage. Finally the layer of coagulated albumen often retains the dye to the extent of injuring the preparation—this being particularly true where "contrast" stains, as eosin, anilin blue, etc., are employed.

With the object of overcoming the manifest imperfections of the albumen fixative process, Gulland³ has devised the excellent *water method* of fixing paraffin sections on the slide, the principle of this method being that of simple adhesion. In brief, this method consists in transferring the ribbon of serial sections, cut by the microtome, to a shallow dish of water slightly warmed, but not warm enough to melt the paraffin. Here the sections at once *flatten beautifully*, and after being cut into smaller ribbons, are guided into position on a slide immersed in the dish of water. When the required number of sections have been floated on the slide, it is carefully withdrawn from the dish, set on end, and allowed to drain and then removed to the warming oven in which the water gradually evaporates. A very necessary precaution is, that the temperature of the warming oven be a few degrees below the melting point of the paraffin surrounding the sections, for the paraffin must not be melted until adhesion is complete. The time necessary for perfect fixation naturally varies according to the thickness and number of the sections. Under the most favorable conditions, at least an hour's warming is necessary; but more often it will be found that twelve to twenty-

four hours must have elapsed before the adhesion is perfect. It is plainly evident that this loss of time is a serious disadvantage of Gulland's method. Moreover, for some unaccountable reason, certain sections refuse to adhere to the slide in spite of the greatest care in the details of the method, this being notoriously true of sections of tissue killed in Flemming's solution. The great advantages of the water fixing method lie in the absolute certainty with which the sections may be flattened, and in the absence of a foreign medium between the slide and the adhering section. Obviously, the manipulations in a dish of water as originally practiced by Gulland, are often awkward and undesirable, and particularly in the case of single sections. Then the task of guiding a number of ribbons into position on a slide immersed in a dish of water, is no small one for inexperienced hands. For these reasons, an improvement on Gulland's process was not long in coming.

The modification of the water fixing method proposed by Heidenhain,⁴ has many excellent improvements. The method⁵ as described by its originator, consists in wetting the surface of a clean slide with a cloth dampened with distilled water, and then placing a drop of water on the center of the slide over the surface to be occupied by the section. The section is now transferred to the layer of water on the slide, and the slide then laid on a warming plate, or in a warming oven, until the flattening of the section is complete, when the excess of water is drained away by a piece of filter paper. The evaporation of the water must be effected at a temperature just short of melting the paraffin, as in Gulland's process. Finally, when the section is fixed on the slide, the paraffin is gently melted and the slide immersed in a jar of xylol or benzine, where the paraffin is dissolved. Of course if ribbons of sections are to be mounted on the slide, a more extensive layer of water is to be applied before bringing the sections into position. The improvements of this process on the original water method lie in the ease with which sections are manipulated on the slide, and the greater rapidity of fixation on account of the diminished amount of water on the slide. Still the adhesion is not perfect in less than an hour of drying, and usually several hours' evaporation must be permitted, before the sections are fixed with sufficient security to admit of the various baths in xylol, alcohol, water, stains, and other media required in the preparation. As in Gulland's method, some sections refuse to adhere to the slide after Heidenhain's process, and here again the Flemming fixed tissue shows its peculiar obstinacy.

From the foregoing it must be clear that, with all their points of merit, the water fixing processes are not without their serious drawbacks. Especially are these felt when it becomes necessary to fix some delicate, wrinkled or curled section on the slide, and complete its preparation in the shortest possible time; or when, after fixing some choice section to the slide, one is rewarded for his pains by seeing it float away in the jar of alcohol, or water, or staining solution. The ordinary microtome is an impatient fellow, and he does not complacently wait several hours for the drying of a section, nor does he accept

¹ A. B. Lee, *The Microtome's Vade Mecum*, Second edition, London, 1890, pp. 172 to 183.

² *Mitt. Zoolog. Station zu Neapl.* iv, p. 321, 1885.

³ *Journal of Anatomy and Physiology*, Vol. xxv, p. 56.

⁴ *Festschr. Albert von Kölliker*, Leipzig, 1892, pp. 109-66.

⁵ Heidenhain's methods were described in detail by the writer in the *Medical News*, Vol. lxi, No. 21, 1892.

with good grace, the loss of a valuable specimen. This has led experimenters to a trial of various rapidly evaporating solutions, instead of the water of the Heidenhain process; but so far as is known, no absolutely reliable substitute has been found, for it appears that the element of time in evaporation has much to do with the success of the water method.

While experimenting in this direction with some of his associates, the writer hit upon the idea of combining the water and albumen fixing methods in fixing the sections in position. Why could not the flattening properties of the water be combined with the infallible adhesive properties of the egg albumen, in fixing a section on a slide? An extensive trial of the method founded upon this idea has convinced me of its merits, and while no claim to absolute perfection is made, still the process offers several advantages over either of the described single processes, as will be evident on practicing the procedure here outlined. The details of the method as here proposed, may doubtless be modified to advantage without violating the principle.

The surface of a perfectly clean slide which is to be occupied by the section or sections is covered by a thin layer of Mayer's albumen fixative. In obtaining this layer of albumen, the ordinary plan of "painting" with a camel's hair brush is faulty, because minute bubbles are incorporated in the layer of albumen, which interfere with perfect fixation. A better plan consists in first "painting" a layer of fixative on the slide with the brush, and then smoothing the layer by drawing across its surface the straight, narrow edge of a perfectly clean slide. Care must be taken in this step not to remove too much of the fixative, for a certain definite quantity (only to be learned by experiment) must remain on the slide. A smooth layer of albumen fixative, free from bubbles, being spread on the slide, a drop of distilled water is now brought in contact with the surface of the albumen; or, where a number of sections are to be mounted on one slide, several drops of water may be required. The water spreads in an even layer on the surface of the albumen. The dropping may be performed by the aid of a medicine dropper, a pipette, or by a wash bottle. The sections are laid on the surface of the water, and when the requisite number are thus transferred, the slide is carefully heated. The writer usually effects this preliminary heating by holding the slide at the proper distance above the flame of a Bunsen burner, or the flame of a petroleum lamp. Watching the sections carefully as the warmth increases, they may be observed to flatten gradually until every wrinkle or inequality is erased; and at the end of a minute, or even less, the flattening is complete. At this stage care should be exercised to make the heating somewhat gradual, and the paraffin must never be allowed to melt. Should a beginning melting of the paraffin be observed, a brisk blow of air upon the slide will often cool the water sufficiently to check the melting. Should it be discovered, at this stage of the process, that the proper position on the slide is not occupied by the section or sections, this may be remedied, for the sections are readily moved as they float upon the layer of water. Having flattened the sections, the excess of water is removed by allowing it to drain from one edge of the slide, and this is assisted by absorbing the water about the sections with a piece of clean

filtering paper. The remainder of the water must now be evaporated, and this is effected by placing the slide in a warming oven, on the surface of a paraffin bath, or in any place where the temperature is slightly below the fusing point of the paraffin; for until the evaporation of the water is complete, the paraffin must not be allowed to melt. On a pinch, the evaporation may be procured by waving the slide to and fro at the proper distance above a gas or lamp flame. If the draining and absorption of the water has been carefully carried out, the evaporation takes place with rapidity. At most, *ten minutes* should be allowed for this proceeding, and at the end of this time, the water being entirely evaporated, we have our sections properly flattened, and adhering to the slide by a layer of Mayer's albumen fixative.⁶ It only remains to melt the paraffin; when the slide is plunged in a jar of xylol or benzine, then into alcohol, and the staining carried on according to the rule.

It will be noticed, in following this method, that the excess of albumen fixative has been removed from about the section, so that little of the difficulty of an excess of albumen will be encountered. Sections of all kinds, single and in ribbons, large and small, smooth and wrinkled, will be found to flatten as if by magic under the influence of the layer of warm water. To this rule there is but a single exception, and that is in the case of sections folded in such a manner that one surface adheres to another—as for instance; one section lying above, and adherent to another. In this case the two layers will flatten; but obviously, they will not separate. This accident may be prevented by stretching the section, or by smoothing out the suspicious layers before the paraffin warms. This accident is not of more frequent occurrence than when Heidenhain's method is practiced; and as a matter of fact, the combined method offers all the good features of Heidenhain's procedure, with the additional security of perfect adhesion.

A trial of the combined water and albumen process, in the laboratory, extending over a period of nearly two months, has convinced the writer of its advantages. Sections of tissue killed in a variety of agents; as Flemming's solution, Carnoy's solution, corrosive sublimate, absolute alcohol, chromo-acetic acid, etc.; are all fixed on the slide with perfect security, and admit of the most complicated methods of staining. In the case of single, small sections, they could be fastened to the slide and ready for the paraffin solvent in two or three minutes; the sole source of heat for the operation being a petroleum lamp, or a gas-burner. With larger sections, or with ribbons, from five to ten minutes were consumed in the drying; but in no case was it found necessary to prolong the evaporation more than *ten minutes*. This saving of time, then, is another merit of the combined method. It is not intended to convey the idea that there were no failures, for at first it was often found that a section would be washed from the slide; but more experience served to indicate the faulty steps, and these were easily corrected. From this it may be concluded that, with a little practice, and an intelligent modification of erroneous steps, the process of fixing sections on the slide by water and albumen may be conducted with perfect ease, and with an assurance of perfect results.

⁶ The formula for Mayer's albumen fixative as given by Lee (loc. cit.), and employed by writer is as follows: White of egg, 50 c. c.; glycerine, 50 c. c.; salicylate of soda, 1 gram. Shake well and filter through flannel.

SOCIETY PROCEEDINGS.

American Electro-Therapeutic Association.

Second Annual Meeting, held in New York, October 4, 5 and 6, 1892.

WILLIAM J. MORTON, M.D., PREST.

THIRD DAY, OCTOBER 6—EVENING SESSION.

(Concluded from page 424.)

SOME SUCCESSES AND FAILURES WITH ELECTRICITY IN GYNECOLOGY.

By A. Laphorn Smith, B.A., M.D., M.R.C.S. England, Fellow of the American Gynecological Society, Fellow of the American Electro-Therapeutic Association.

My experience with electricity in gynecology has been limited to:

1. Positive galvano punctures.
2. Negative galvano punctures.
3. Positive intra-uterine applications of galvanism.
4. Negative intra-uterine applications of galvanism.
5. Sacro-abdominal applications of galvanism.
6. Vagino-abdominal applications of galvanism.
7. Intra-uterine bipolar fine-wire faradism.
8. Vaginal bipolar fine-wire faradism.
9. Intra-uterine coarse-wire bipolar faradism.
10. Vaginal bipolar coarse-wire faradism.
11. Vagino-abdominal coarse-wire faradism.

Positive Galvano Punctures.—I have had one very marked success with positive galvano puncture in a case of enormous uterine polypus, in a patient who was so exhausted with hæmorrhage that no surgeon would dare to give her an anæsthetic in order to remove the polypus, which was the size of a seven months' fetal head, and nearly filled the pelvis. Half a dozen positive galvano punctures were made into the tumor as a palliative measure, with the result that the hæmorrhage and profuse watery discharge were stopped, and the patient improved so much in health that she would not entertain the proposal to remove the tumor, apparently suffering no inconvenience from it. I followed her up for about a year, since which I have lost track of her. Although I employed currents of 150 m., the treatment was absolutely devoid of pain.

On the whole, I am opposed to galvano puncture, having lost one case through an error of diagnosis and neglect of strict antiseptic precautions, and having, in another, caused a good deal of suffering without proportionate results. My chief objection to it, however, is that it almost surely causes adhesions which, in case of the necessity ever arising for removal of the uterus, would greatly increase the difficulties of the operation. A minor, but still important objection to punctures is that they frighten the patient away from continuing the treatment. I have to record one complete failure with the negative galvano punctures to relieve the pain of an impacted non-bleeding fibroid. The death above referred to is the only fatal or even dangerous accident I have had since I first began the use of galvanism.

With positive intra-uterine applications, on the contrary, my success has been almost inviolable. I have employed them in rapidly growing bleeding fibroids, in subinvolution, in *fungous indometritis*, and in *menorrhagia* from other causes, the disease having been arrested in about ninety per cent. of the cases. Success has been due to attention to the following points: Correct diagnosis; the introduction of a solid or flexible sound the whole depth of the uterus; the employment of a sufficient current strength to furnish at least twenty-five milliamperes to each square centimetre of surface of the sound, and the rigorous following out of the septic and all the minor details of the method as laid down

by Apostoli. One of my failures (Miss B.) to arrest hæmorrhage with positive intra-uterine applications of galvanism was due to the eating into a small uterine sinus with the end of the electrode, which, at that time, I was not in the habit of taking the precaution of insulating with a little wax.

This case would have been a complete success had it not been for this accident, but owing to the slight hæmorrhage, lasting, however, two weeks, I was led to class it as a failure and the uterus was removed, the patient making a good recovery and now enjoying good health.

It is interesting to note that although she received over fifty strong applications with the clay electrode on the abdomen, there was not found the slightest sign of an adhesion anywhere, except at a small spot at the back of the uterus where the latter had been rubbing on the brim of the pelvis.

Another failure, Miss S., was due to the condition of the appendages, which prevented me from giving adequate doses. By the aid of a little anæsthetic occasionally I was able to give her 100 applications lasting each from seven to ten minutes, and of an average strength of 100 milliamperes. The tumor was reduced in size one-fourth, the hæmorrhage was reduced fully three-fourths, and the patient regained her color. But her home being a thousand miles away, and as she feared that the hæmorrhage might return when she would not be able to return for treatment, she urged me to perform hysterectomy, which I told her was the only absolutely certain treatment that would prevent the hæmorrhage from returning. At the operation there was not a sign of an adhesion anywhere after 100 applications of galvanism, some of the doses going as high as 175 milliamperes. She made a rapid recovery and is now in excellent health, performing her duties as principal of a high school where there are 600 girls. So far from the treatment with electricity making the operation more difficult and complicating it with adhesions, I certainly should have dreaded undertaking the operation while she was in the exsanguinated condition which she presented when she first came under my care. If she had resided in this city, or anywhere where she could have reached me and received further treatment in case of a return of the bleeding, she would not have required to have undergone the operation at all.

In another case, Miss S., of failure with the positive pole in the uterus, the patient had been sent to me with a diagnosis of fibroid, which had been made and confirmed by several leading surgeons. The tumor at first diminished in size, and the patient's general health was much improved, but after a time it suddenly began to grow again, when I sent her to the hospital for operation, at which I was present. The tumor proved to be a sarcoma of the ovary, into a depression in which the uterus was imbedded, rendering it difficult to differentiate the one from the other by a digital examination.

A brilliant success, however, was a Mrs. P., who had bled so much that as a last resort a leading gynecologist in the city had packed her in ice. I kept her tamponed with alum tampons for a few days until I could improve her enough to be carried to my office. The introduction of a soft bougie to measure the depth of the uterus caused the blood to pour out on to the floor of my office before I had time to catch it. Her skin was waxy and absolutely colorless. After twenty or twenty-five applications her periods became perfectly normal, and have remained so for several years. I took the trouble to hunt her up a few months ago to present her to the medical society, and found that she had been in perfect health ever since, suffering no inconvenience whatever from the tumor, which had been reduced fully a third. This

woman would surely have died, whether she had been operated on or left alone; in fact, no one would have dared to operate on her in the almost pulseless condition in which I first saw her.

Another brilliant success was Mrs. S., an artist by profession, who had almost become a hopeless invalid, but who after only fifteen applications of galvanism was restored to almost perfect health, and has not lost a day from her work since. The tumor was reduced a third in size, and she suffered no inconvenience from it whatever. It is now three years since the last application, and she has had no relapse. Another successful result from the positive pole in the uterus was Miss A., chambermaid in the Windsor hotel, who was about to abandon her occupation when she came under my care, but after fifteen applications was able to resume her work, and has been well ever since—now two years ago.

Mrs. X., wife of physician in this city, used to bleed so severely that she had to pass a week out of every month in bed, with her feet raised and her head low, and even then she would faint repeatedly; after ten applications was so much improved that she was no longer obliged to remain in bed at all. I subsequently curetted the uterus and repaired lacerated cervix and perineum, and now she is enjoying very fair health.

Miss A. was sent to me from Scranton, Penn. She was an expert stenographer, but was unable to keep a situation because for ten days in every month she had to remain in bed. If she attempted to remain up, large clots would come away, so that she would have to stand in the office over a newspaper and allow them to fall on it, besides she would saturate a dozen napkins a day with the serum. After one hundred applications her periods came down to three days, and she is now married.

Mrs. P. from a distant city, had to be carried into my office, but was able to walk a distance of a mile or two after having received ten applications. She received in all fifty applications, the last one three years ago, but she has remained well ever since.

One of my most recent successes is Mrs. F., of this city, who was affected with severe hæmorrhages, and who after about twenty applications was relieved of all her symptoms. There has not been any return of the hæmorrhage since leaving off the treatment three months ago.

Two cases which were sent to me as bleeding fibroids were not cured by electricity, as they subsequently proved to be one sarcoma and the other epithelioma of the uterus.

In both, however, the hæmorrhage was arrested, although one has since died and the other will soon die.

All the cases so far mentioned with the exception of the last two of cancer, were cases of bleeding fibroid tumors of the uterus, and they were all in women under forty years of age. They were all treated with positive intra-uterine applications.

In another case of a woman, Mrs. N., who had been bleeding steadily for a year and who had also a bad lacerated cervix, there seemed to be no doubt about the cancerous nature of the disease. Her hæmorrhage was permanently arrested by only have a dozen applications of the positive pole. My success in this case led me to entertain the hope that we had at our hand a cure for uterine cancer, but in another case far advanced the treatment proved an utter failure. If it is to be of any use the cases must be seen early.

Besides these fifteen cases I have treated about forty-five cases with the positive intra-uterine pole, for other conditions, principally for fungous endometritis, edometritis with hæmorrhage at the periods, but also in cases of subinvolution. Of these forty-five cases I can only recollect two failures to arrest the hæmorrhage. In every case the depth of

uterus was diminished. There has been no failure to produce this result. In one case the effect was especially gratifying, an old lady with her womb lacerated, large and heavy, hanging between her legs, to whom I administered about half a dozen positive applications followed by coarse wire faradism. The womb became reduced so that a little toning up of the supports rendered them able to keep the organ within her body, where it remained till her death, two years later, from apoplexy.

The following cases were treated with negative intra-uterine galvanism, and gave me some of my most brilliant results.

Miss W., who had suffered agony for several years from pressure on the urethra and rectum, and was obliged in consequence to abandon her position as cook in a gentleman's family, was completely cured four years ago by about twenty applications, so that she was able to start and carry on successfully a large boarding-house, for which she now does both the cooking and the catering. The last time I examined her the tumor could not be felt.

Mrs. D., from a town near here, had suffered for eight years from pressure symptoms, but not from bleeding, from a large interstitial fibroid. Her health had been completely broken down by the large quantities of morphine which her suffering necessitated. One hundred applications cured her, so that two years afterward her physician wrote to me that the tumor had entirely disappeared. Although it is now over four years since her treatment, menstruation is regular and painless, and she continues in excellent health.

Miss McP. suffered so much from pressure symptoms that she was obliged to give up her situation as cook. Her tumor was growing rapidly. After about twenty applications the growth was arrested, and she felt so well that she entered the writer's service, where she has ever since, now five years, performed her duties without interruption.

Mrs. D., from Holyoke, had a large submucous fibroid which was growing rapidly. After the first application there was so much diminution in the size of her waist that she decided she was cured, and started for home. She was taken with severe expulsive pains on the train, and soon after reaching home she gave birth to a broken down fibroid about the size of a seven months child's head, since which she has enjoyed good health.

In half a dozen other cases of fibroid the pains and pressure symptoms were fairly well relieved by negative applications.

In the treatment of dysmenorrhœa I have had some very gratifying results, so that I can say that I know of no treatment except removal of the appendages which can offer such good prospects of relief. Since reporting nine cases of dysmenorrhœa cured by negative galvanism, I have added half a dozen more to the list, while only one has utterly failed to be relieved, and one relapsed until she received two more applications, since which she has remained well.

With sacro-abdominal application of galvanism I have not had any marked success, although I have only given it a limited trial. With vagino-abdominal applications I have seen the tender, enlarged and prolapsed ovaries become lighter, painless, and to disappear from Douglas' *cul-de-sac*. I have also, on three occasions, seen the uterus, which was previously bound down and retroverted, become movable. While I can hardly believe that organized bands of adhesions can be dissolved or, in the words of the electro-therapeutical poet, "melt away like snow before the summer sun." I can believe that such a powerful alterative may so improve the circulation in the lymphatics that soft or liquid exudations may be reabsorbed.

With bipolar fine wire faradism I have treated at least fifty cases, principally of inter-menstrual pain due to neuralgia of the uterus and ovaries, and of varicocele of the

pampiniiform plexus. I have sometimes used it in some of the above-mentioned cases of fibroid in order to establish tolerance for the galvanic current. For any kind of pain in the pelvis, in which no organic disease of the uterus or appendages could be felt by careful bimanual examination, I have found bipolar faradism invaluable.

Where it has failed to relieve, subsequent operation has revealed undiagnosed pus in the pelvis, for which of course there is only one treatment, and that is evacuation. I have sometimes used it in the uterus, but most often in the vagina, which seems to me much safer and almost as effectual.

With coarse wire faradism I have also had very satisfactory results in cases of retroflexion due to atony of the uterus, and also in cases of prolapsus. In one case of procidentia of a very advanced type it failed to keep the uterus up; but in least a dozen other cases of moderate degree in which the uterus was not so much enlarged, a few applications of coarse wire faradism so toned up the relaxed vagina and perineal muscles, especially the levator ani, that the women have declared that they were greatly relieved, and some of them have even returned each summer during the hot weather to have their pelvic contents toned up. The subinvolved uterus, like the uterus at the end of pregnancy, responds very readily to the faradic stimulus, and any one who has employed coarse wire bipolar faradism in the vagina cannot have failed to notice how the electrode is grasped by the sphincter of the vulva and drawn up by the levator ani.

Vagino-abdominal coarse wire faradism I have used several times with the view of shortening the round ligaments, as it has been demonstrated that the freshly removed round muscle will when stimulated by the faradic current lift a weight of a pound and a half off the table. But the result was too slow in coming, so that I was tempted to perform Alexander's operation instead.

As this paper is entitled some successes and failures with electricity in gynecology, I have not given a very detailed account of every case. It is rather a general stock-taking after nearly five years' experience with it.

As far as I know the harm I have done with it has been limited to one death and two miscarriages all due to mistakes in diagnosis. I believe that I have saved at least twenty women from operation and three or four from death, while I am absolutely positive, certain electrohobists to the contrary notwithstanding, that in those whom I treated with electricity but whom I did not save from operation, the operation was in no way rendered more difficult thereby, but in all probability their chances were improved, all of them having made easy recoveries.

I think it is unjust and unfair for my friend Dr. Joseph Price and others to lay all the blame of adhesions on electricity when they know as well as I do that these complications are met with in cases which have never been touched with electricity, while on the contrary they know that cases which have been treated for a year with electricity were found at the operation to be absolutely free from adhesions.

NOTE UPON A NEW APPLICATION OF THE ALTERNATIVE SINUSOIDAL CURRENT IN GYNECOLOGY.

Presented by Dr. G. Apostoli simultaneously at the International Gynecological Congress at Brussels, and the session of the American Electro-Therapeutic Association, in New York, October 4, 5, and 6, 1892.

The alternating sinusoidal current which M. Arsonval has introduced into electro-therapeutics is utilizable in gynecology, and the following is a summary of the new acquisition:

In five months, from March to August inclusive, 1892, thirty-four patients, comprising twelve fibromata and

twenty-two affections of the appendages, were treated at the clinic of Dr. G. Apostoli by the alternating current. This was done with the coöperation and assistance of Drs. Grand and Lamarque, the total number of séances being 320.

All the patients were submitted to a uniform application, one pole in the form of a sound being introduced into the uterine cavity, and the other, a large clay pad, upon the abdomen. The duration of each séance was five minutes, and was renewed two or three times a week.

The rapidity of the alterations varied according to the circumstance, or rather to the sensibility of the patients, and oscillated between a mean of four to six thousand, and a maximum of ten to twelve thousand per minute.

The apparatus employed is the first model constructed by Gaiiffe, which is really but the magneto-faradic machine of Clark, modified and transformed by Arsonval, giving at its greatest rapidity a maximum difference of potentiality of sixty-four volts and its average rapidity a difference of thirty-two volts. This apparatus is driven by a pedal.

All the thirty-four patients were carefully watched, and the following are the general conclusions which were obtained from this initial period of treatment, conclusions which do not always appear definite to Dr. Apostoli because of the imperfect instruments and the relative short duration of the period of experimentation:

1. The alternating sinusoidal current applied to the interior of the uterus under the operative conditions under which Dr. Apostoli was placed, was always inoffensive and well supported.

2. Its application was not followed by any painful or febrile reaction, but on the contrary, was very often accompanied by a manifest sedation.

3. It did not seem to have a restrictive action on hæmorrhagic symptoms, but, on the contrary, sometimes had a tendency to cause their continuance.

4. It exercises a specific action on the symptom *pain*; this action obtains in the first séances, and most often at the end of the first séance.

5. It usually, but not universally, relieves leucorrhœa, which diminishes or disappears under its use.

6. It has no appreciative action on the hydrorrhœa associated with certain fibromata.

7. Its influence upon anatomical retrogression of fibromata is not yet definitely established.

Its action favors the resolution of peri-uterine exudates.

In conclusion, this treatment, though recent and still apparently incomplete, has always given a sufficiently definite response that it may be permitted to be considered a happy conquest in gynecological therapeutics. Succeeding researches will enable us, in the near future, to determine and fix the operative conditions under which we may the better combat the different pathological states (hypertrophies, infection, or cellular inflammations), and there will be opportunity to vary in such and such a case the number, the duration and the frequency of the séances, and to study the different curative results due to variations in voltage and intensity of the current as well as the rapidity of the alternations.

The results achieved prove that the alternating sinusoidal current should take a place in gynecology by the side of, but not yet above, the faradic and galvanic. It is destined to assist them either as a completing active auxiliary or as a supplement to them, and to fill the new and personal indications which the future will establish more definitely.

It is at present the remedy *par excellence* for pain, and if it will not make a clean sweep of galvanic and faradic applications, which have proven their efficacy, it is always an arm the more, and conservative gynecology is unable to do

otherwise than accept all that tends to enlarge and fortify her domain.

THE RESTORATION OF VITALITY TO MUSCLES WHICH HAVE BEEN COMPLETELY PARALYZED FROM POLIO-MYELITIS.

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It has always been a question of considerable doubt as to whether electrical stimulation of muscles which have become paralyzed from disease of the spinal cord has any decided influence in restoring them to a normal condition and at the same time reflexly stimulating degenerated nerve cells in the cord into a condition of vitality. I think it may be taken for granted that if any permanent benefit is derived from electrical stimulation of the muscles, it must be in consequence of aroused energy in the nerve cells which supply those muscles. Stimulation confined entirely to the muscular tissue, if it has any regenerative effect at all, can only be temporary, and must cease to be operative soon after the stimulation is discontinued. To be permanent at all, the cells in the anterior horns must be stimulated or developed sufficiently to enable them, by their own activity, to supply the paralyzed muscles with motion and nutrition. I do not refer to acute diseases of the cord. In such cases a certain amount of repair takes place in the cord after the destructive process has ceased; but while the disease is in progress the paralyzed muscles are undergoing atrophy, which degeneration local applications of electricity can retard to a great extent. I refer particularly to chronic cases, in which the destructive process in the cord has long since ceased, and in which the patient is left with some muscles over which there is slight voluntary control, and with others which seem to be totally paralyzed.

Microscopical examinations of sections of the spinal cord in such instances show the affected anterior horn to be atrophied, while many of the nerve cells have entirely disappeared, and others again have become rounded, have lost many of their processes, their nuclei are indistinct, and the body of the cell is shrunken, pigmented or granular. Cells are observed in all stages of degeneration, from almost total destruction to a nearly normal condition.

It is the general opinion, and it is probably correct, that the paralysis and atrophy of the muscles are in direct ratio to the destruction of the cells in the anterior horns; that muscles which are partially paralyzed are supplied by cells in a more or less partial state of degeneration; and that those muscles of which the patient has absolutely lost all motor power, have reached that condition on account of the total destruction of the cells which formerly enervated them.

There is a wide diversity of opinion in regard to the value of electricity in the treatment of the paralysis of spinal origin. Nearly all investigators admit the efficacy of this agent in acute cases of polio-myelitis, in retarding the paralysis and atrophy of the affected muscles simply by its local stimulating action on the muscles themselves. But there is not the same unanimity of opinion when the chronic form of polio-myelitis is considered. As I have previously remarked, the only way in which voluntary movements of the paralyzed muscles can be regained is by the more or less complete regeneration of the nerve cells in the anterior horns. No one for a moment believes that nerve cells which have been entirely obliterated can be reproduced again by the action of electricity or by anything else, and many refuse to believe that nerve cells which still exist, though in a more or less degenerated condition, can be stimulated to a more healthy growth or to any further development by electrical applications applied to the muscles supplied to such cells. It is quite possible, in some instances, even in apparently favorable cases, that electrical applications are unavailing, but the cases reported in which permanent ben-

efit has been derived are two numerous to be disregarded. I shall not, therefore, consider the question of the efficacy of electricity in cases of polio-myelitis; I shall take that for granted. I do not mean to say that I believe all cases can be benefited, but I believe many of them can be, if properly treated. The subject which I shall call particular attention to is in reference to the ability to discriminate between those muscles which are capable of being improved and those which are too degenerated to admit of such a possibility.

It is generally conceded that muscles which do not respond at all to repeated attempts at electrical excitation are those whose cells have been destroyed. It is therefore useless to hope for any improvement in their condition. I will admit that if there is no contraction of the muscular elements, or if there are no muscular elements remaining, then electricity is a useless remedy. But how is it to be determined whether a muscle contracts or not? This question is usually decided by the senses of touch and sight. If the operator cannot feel a muscle contract or see it contract, he usually comes to the conclusion that it does not contract, and consequently gives a hopeless prognosis so far as that particular muscle is concerned. But there may be cases—I am satisfied there are such cases—in which the nerve cells, though greatly degenerated, are not entirely destroyed, and the muscular contraction under electrical stimulation does take place, though it may be so slight as to escape detection by the senses of the most acute observer; furthermore, that such cases are sometimes capable of a certain amount of improvement. In support of this view, I desire to report the following cases:

Case 1.—A lady about twenty-five years of age consulted me in the year 1889. When six months old she had suffered from an attack of anterior polio-myelitis which left her with the anterior tibial and peroneal groups of muscles paralyzed in both legs. As she grew older, both gastrocnemii contracted, giving rise to marked talipes equinus. On examination, I found that all of the muscles in the right leg responded to the galvanic current, but not to the faradic. The contractions were, however, very slight. In the left leg the peroneal muscles responded very slightly to galvanism—the anterior tibial muscles not at all. The contraction of the gastrocnemii was so powerful that they could not be overcome by any force it would have been proper to have used. At my request Dr. A. M. Phelps divided the tendons of both muscles. After the tendons had reunited, it was found that the feet could be flexed passively to their normal limit. Voluntarily the patient could flex the right foot and extend the toes slightly. On the left side all the muscles responded faintly to will power except the tibialis anticus and the extensor proprius pollicis. These muscles seemed to be completely paralyzed, nor would they respond to any form of electrical stimulation.

My opinion was that those muscles which could be made to react to electricity could be developed to a limited degree, while it was hopeless to look for any improvement in the tibialis anticus and extensor proprius pollicis in the left leg. I made applications of galvanism almost daily for over a year. The applications were made to the two completely paralyzed muscles just as regularly and as thoroughly as they were made to the others. The development of the others was slow, but progressive. The power of flexion of the right foot gradually increased until it could be perfectly accomplished. I was greatly surprised, about six months after treatment began, to observe a very faint reaction in the left tibialis anticus. As time went on the contractions became more noticeable, and finally could be induced by efforts of the will. A year after treatment began, flexion of the left foot could be performed fairly well. A

little over a year after treatment began, slight contractions were observed in the extensor proprius pollicis. This muscle has slowly developed, but not to the same extent as the tibialis anticus. The great toe can be partially extended, but the muscle is very weak. At the present time the patient walks quite well without a brace of any kind. The heel strikes the ground first, and in bringing the feet forward they can both be so well flexed that the toes never strike the ground.

Case 2.—A lad, eleven years of age, consulted me in April, 1891. When he was six years of age he had an attack of unilateral polio-myelitis, which resulted in partial paralysis of the anterior tibial group of the left leg, with the exception of the tibialis anticus, which was totally paralyzed. The peroneal group were in the same condition. These muscles could not be made to contract to the electrical current to the slightest appreciable extent. All other muscles acted feebly. There was slight talipes equino-varus. The gastrocnemius was contracted and unyielding; so the tendon was cut.

Electricity was used daily, all of the muscles reacting except the peroneals and tibialis anticus. These muscles, however, received applications just the same as the others. It was only after seven months of daily applications that faint contractions were observed in the tibialis anticus. These, however, increased in vigor, and soon slight contractions could be induced by efforts of the will. This muscle has slowly developed power, so that the foot can be voluntarily flexed; but it requires a mental effort to perform the act, and the muscular effort cannot yet be maintained longer than a few seconds. Although I persistently endeavored for a year and a half, to arouse some vitality in the peroneal muscles, I was not successful. The muscles are just as inert to-day as they were when I first examined them.

Case 3.—A boy, nine years old, came to my clinic at the Post-Graduate Hospital, in May, 1891. When he was three years of age he had had an attack of anterior polio-myelitis, which had paralyzed the muscles on the anterior and external sides of the leg. Electrical examination showed that all of the muscles responded slightly except the tibialis anticus and the extensor proprius pollicis, which appeared to be totally inert. Daily electrical applications were made. It was only at the end of five months that slight contractions were observed in the tibialis anticus. This muscle gradually developed until voluntary control was fairly well established. The foot could be flexed, but the muscle has never become what could be called strong. The electrical applications were continued almost daily to the extensor proprius pollicis for nearly eleven months but without obtaining the slightest evidence of reaction.

. These three cases show that in some instances it is possible to restore, or at least to partially restore, vitality to muscles which were at first regarded as hopelessly degenerated. Because the senses were not able to appreciate minute muscular contractions, there was no proof that such contractions did not occur. They probably did occur. Those muscles which, after months of careful attention, showed visible signs of vitality were probably in relation with cells in an extremely degenerated condition, but which were not completely destroyed, and which, under stimulation, were capable of a certain degree of regeneration. Those muscles which, even after many months of assiduous applications, still failed to show evidences of vitality were evidently completely degenerated and their cells obliterated. These cases simply demonstrate that our senses are not sufficiently acute to determine whether totally paralyzed muscles are capable of improvement or not, and, that it is only after long-continued treatment that this point can be definitely ascertained.

EXECUTIVE SESSION.

A letter written from Paris by Dr. George J. Englemen of St. Louis, was read.

The President thanked the members for their courtesy and coöperation, which had made such a pleasant and profitable meeting possible. Some of those coming a long distance had expressed their pleasure at the large and interested audience present. He then presented the newly elected president, Dr. A. H. Goelet.

Dr. Goelet expressed his appreciation of the honor conferred upon him, and also hoped that he would be able to discharge his duties half as well as the retiring president had done.

Dr. Nunn said that while of course the success of the meeting had depended to a certain extent upon the members, it had depended no less upon the presiding officer, whose courteous manner of conducting the business was worthy of all praise, as it was decidedly exceptional in the history of such gatherings. Last year, after listening to his paper, he admired him as a physicist; last night, he admired him as a toast-master. He felt therefore, that he should congratulate the Association on having such a president, and he moved a vote of thanks to him for the extraordinary way in which he had presided over the deliberations of the Association.

The Association then adjourned.

SELECTIONS.

ON INTERNAL SECRETIONS AND THE FUNCTIONS OF THE SO-CALLED BLOOD GLANDS.—The older physiologists classified together a number of ductless glands and called them "blood glands" for example, the thyroid, thymus, and suprarenal capsules. The glands so grouped were supposed to be concerned somehow or other in the formation of blood, but their *modus operandi* was not known. The results of a number of recent researches on these and other glands show that several glands in the body, with or without ducts, exert an influence on the composition of the blood in a manner not previously suspected. As long as the view prevailed that glands with ducts poured all their secretory products—the result of the protoplasmic activity of the secretory cells lining their acini—into their ducts, to be discharged upon some surface, one's conception of a secreting gland was comparatively simple. Such a secretion discharged by a duct would be called an external secretion. With the discovery of the glycogenic function of the liver—and when it was found that substances might be formed within glands and not be discharged by their ducts, but, on the contrary, left the organ by the blood stream, for example, sugar in the hepatic vein—a wider view of gland activity was obtained. The process whereby substances are thus discharged by glands into the blood stream—or it may be into the lymphatics—has been happily named by French observers "internal secretion."

If we take three widely different glands, for example, the thyroid, pancreas, and suprarenal capsules, recent researches have thrown a wonderful light on the relation of each of these glands, more especially to the chemical constitution of the blood.

The extraordinary results following complete excision of the thyroid gland in man, monkeys, and dogs, namely, the appearance of myxœdema, with all that this entails in the altered chemical constitution of the blood, the condition of the subcutaneous tissue and salivary glands, and the effect upon the nervous system, point to the profound influence which this gland exerts on the blood, and the general metabolic phenomena of the body. But when we look at the

equally remarkable fact that the injection of the juice of thyroid glands greatly ameliorates the symptoms of myxœdema in man and dogs, we have another evidence of the important part played by some constituent or constituents manufactured in the thyroid. It may be that this gland discharges something into the general blood stream—an internal secretion which is necessary to the maintenance of a proper composition of the blood and certain of the tissues. Or it may be that this gland prevents an auto-intoxication either by transferring the toxic products of metabolism into easily eliminated bodies, or by directly neutralizing these products by its secretion. This is the theory at present most in favor. The injection of the juice of any other gland in the body has no effect on the cachexia strumipriva, such as is caused by the introduction of thyroid juice. At any rate, Albertoni and Tizzoni have shown that this gland does not seem to be associated with the manufacture of blood corpuscles.

It is generally stated that rabbits do not exhibit the usual symptoms after excision of the thyroid. It should be strange if this were so. It appears, however, from a recent research of M. Gley, that although excision of the thyroid in these animals is followed by general muscular twitchings, clonic and tonic attacks, paralysis of the hind limbs, salivation, polypnoea, arrest of the respiration, and death, yet in other cases some rabbits exhibit a special cachexia, like that described by Horseley in monkeys, that is, they become myxœdematous. It would seem, therefore, that the function of this gland is essentially the same in all mammals, but the cachexia is observed less frequently in the dog and rabbit than in man and monkeys. In the former the nervous phenomena are so intense that there is not time for the other phenomena to occur. In cases where no effects follow excision these may be explained by the existence of supplementary thyroids or "glandules," which were not removed. In rabbits, to get the cachexia developed, one must get rid of the troubles following immediately on the operation, for examples, by excising one gland at a time and allowing some compensatory change to take place in another organ, or by the injection of thyroid juice. Gley states that the hypophysis cerebri, or pituitary body, became greatly hypertrophied in some of his cases, and he raises the very interesting question whether this body can partly "supplant" or or compensate for the loss of the thyroid. Hofmeister, of Halle, who has excised the thyroid—but not the accessory thyroids or "glandules"—in young rabbits, find that there is a remarkable arrest in the development of the osseous system, together with trophic lesions of the skin, swelling of the kidneys, and also hypertrophy of the pituitary body.

Turning now to the pancreas, the remarkable experiments of Mering and Minowski showed that complete excision of this organ resulted in what has been called "pancreas diabetes," which is always fatal. It is quite certain that this result is not due to injury of the numerous nerves necessarily injured in the process of excision, and it is equally certain that if incomplete excision is practised fatal diabetes does not take place. This would seem to show that the pancreas is a true "blood gland," capable of modifying the composition of the blood. Does it do so by discharging an "internal secretion" into the blood? Minkowski found that if a part of the pancreas be grafted under the skin of the abdomen, this sufficed to prevent the diabetes which otherwise would follow removal of the pancreas.

M. Hédon has recently confirmed this observation, and devised an ingenious operation for the purpose. In the dog the pancreas is excised, and the remainder of the organ, with its blood vessels and nerves intact, is grafted under the skin of the abdomen, where it soon takes root. No diabetes follows. The original vascular connections may be

severed, yet there is no glycosuria. If, however, the graft of pancreas under the skin and outside the abdominal cavity is removed, or if it undergo atrophy, sugar appears in the urine, and the animal ultimately dies with all the symptoms of diabetes. The subcutaneous graft continues to secrete a modified pancreatic juice, which is excreted externally; thus no pancreatic juice reaches the intestinal tract; so that the symptoms are not in any way due to the absence of pancreatic juice from the intestine.

It is suggested that the pancreas forms some substance which it discharges into the blood, not by the pancreatic duct, but by the blood vessels or lymphatics, and that this substance is concerned in the destruction of the sugar in the body. It has been suggested, moreover, that it is of the nature of a ferment—the term "glycolytic ferment" has been applied to it by Lépine—and that in the diminution or absence of this ferment grape sugar is not destroyed.

But before accepting this theory we must be sure that blood normally possesses the power of destroying sugar. It appears, from a very interesting observation of M. Anthus that fluoride of sodium added to fluids to the amount of one per cent, prevents putrefaction. It prevents the development of organized ferments, but does not interfere with the action of enzymes. He comes to the conclusion that blood normally does not contain any glycolytic ferment, and that, when blood or blood serum changes the sugar, this is due to the influence of a soluble ferment developed after the blood is shed from the vessels. To this must be added the observations of Sansoni, of Turin, who was unable to find the difference stated by Lépine to exist between diabetic and normal blood as regards their glycolytic power—that is, the disappearance of sugar when the estimations are carried out with antiseptic precautions. These statements seem to deprive the glycolytic theory of its basis of support.

If the retention of a small part of the pancreas under the skin will ward off the effects known to follow upon complete excision of this organ, and knowing that injection of thyroid juice ameliorates the effects of excision of the thyroid, it seems worthy of investigation whether the pancreas or an extract thereof may not have a corresponding action. The experiment has been made by Professor A. Capparelli, of Catania, who finds that the intra-abdominal injection of a *purée* of fresh pancreas into dogs without a pancreas greatly reduces the glycosuria. This process seems to amount to something like a transitory graft. This observation so far, however, has not been confirmed. The fact of the existence of pancreas diabetes, remains; but so far the proof—at least sufficient proof—is wanting to prove the so-called "glycolytic" influence of the pancreas on the sugar of the blood.

Amongst the ductless glands of the body the suprarenal capsules have long occupied a unique position. Since the researches of Brown-Séquard and those of Addison—apart from the histology and development of these organs—but little progress up to the immediate present has been made in the physiology of these glands. The one prominent statement—apart from the extreme weakness and rapid fatigue after slight exertion—which one always finds associated with disease of these organs is that pigmentation or bronzing of the skin has been observed to follow when they are diseased in man. Indeed, it is alleged by Tizzoni that excision of these organs in rabbits is followed by limited pigmentation of the skin confined to the region around the mouth. It has also been suggested that they are concerned in the destruction of pigment in the organism. These statements, with the addition that bile salts are found in them, are the chief statements made regarding these interesting glands.

The physiology of these glands, however, has entered on

a new phase, which seems to indicate that although they are ductless they are not functionless; and further, that their function is one intimately related to the composition of the blood; that in this sense they are "blood glands," and that perhaps they discharge into the blood an "internal secretion which acts beneficially upon this fluid, or that they form some substance capable of destroying toxic products which accumulate in the blood after their removal.

By the experiments of MM. Abelous and Langlois we are presented with a new train of facts. Their first researches were conducted on frogs. In these animals the capsules were destroyed by means of an actual cautery because they are adherent to the kidneys, although they have no developmental relation to these organs.

Destruction of both capsules is fatal. The animals, according to temperature, may survive from two to thirteen days. Gradually, after the operation, incoördination of the muscular movements, and finally motor paralysis, is observed, the animal being unable to respond even to the most painful sensations. It seems, therefore, that progressive paresis resulting in paralysis is the general result; a result, however, which does not take place when a considerable part of one capsule is not destroyed.

Now we have to deal with an interesting fact—namely: that the introduction into the dorsal lymph sac of a part of a kidney with the adherent capsule prolongs the life of a frog with its capsules excised. That the composition of the blood is modified in an "acapsulated" frog is clearly proved by the fact that if the blood of an "acapsulated" frog just about to die be injected into a healthy frog, the latter is rapidly paralyzed and dies. Why does it become paralyzed? Abelous and Langlois find that the blood of an animal deprived of its capsules produces symptoms analogous to those resulting from the administration of curare, etc. Stimulation of the sciatic nerve in a frog about to die yields no muscular response, while direct stimulation of the muscle is immediately followed by a muscular contraction. By repeating the well-known experiment of Bernard on curare by ligating the blood-vessels of one limb of a frog so as to exclude the toxic products from that limb, they came to the conclusion that the toxic blood of an "acapsulated" frog acts on the terminations of the motor nerves just as curare does. What the substance is that does this is unknown. Death seems to be due to the fact that the blood of an "acapsulated" and dying frog exerts a paralytic effect, analogous in its action to curare, upon a healthy frog.

Practically the same result is obtained by injecting the blood of an "acapsulated" guinea-pig into a frog. The latter exhibits all the symptoms of a frog deprived of its capsules. It is obvious that some toxic substance accumulates in the blood as a consequence of the removal of these organs, but what that substance is requires further investigation. It is known that an extract of the suprarenal capsules causes toxic symptoms and death, which has been attributed to neurin; but the proof is wanting that it is the presence of neurin in the blood of an acapsulated animal which causes the paralysis of the terminations of the motor nerves which follows excision of the suprarenal capsules.—*British Medical Journal*.

INTEREST IN MEDICAL MEETINGS.—How can the meetings of medical societies be made interesting? This question worries the chairman and secretary of most societies; but the non-official members generally merely criticise, or stay away, if the meetings are tiresome. The drawing power of society often depends as much upon the by-laws, and the activity of the officers as upon the capability of the members. It is necessary first to attract an audience, and then to keep them interested; this being accomplished, the value

of the proceedings may be left to the individual speakers. The greatest bore is a paper which is ten times as long as it need be.

The adoption of a "Ten-Minute Paper," rule has recently become a marked feature in the work of the New York Academy of Medicine, especially in the Section in Pædiatrics, and has resulted in a marked increase in the attendance at the meetings, and a large number of concise and interesting papers. The instruction to writers of papers by the chairman contains the following: "Hippocrates and Galen may be passed with very slight notice, as they have been dead for some time and their opinions are somewhat obsolete. Scratch out the formal introduction and condense the body of the paper. End the paper where the subject matter ends, making its action like that of a piston syringe—begin, spatter, stop."

A busy man is more easily persuaded to write an informal short paper than a formal long one. The formality itself, and the necessity of clothing the main idea is often the bugbear which prompts a man to decline to write. If his contribution is to be one of the *pièce de résistance* it is easier for him, and generally much easier for the audience. In drawing deductions from a case, or a series of cases, a reader is readily excused from going into the details of his process; he is not proving a geometrical problem, or if he is, his hearers had rather see the steps in print, where they can be skipped, than listen to them.

The discussion is generally an interesting part of a meeting. There is usually too little rather than too much, but it would be acceptable to most societies if those gentlemen who have a rambling and procrastinating tendency, could be helped along.

The reader as well as the listener will be more easily attracted by a condensed than by a well padded paper. No one, except perhaps the writer, thinks that there is more dignity in a long than in a short article. The reader has the advantage over the hearer in that he can skip, and look to the end for the conclusion, but the process is not a pleasant one to him. He is repelled by tables and by copies of hospital records, and attracted by short articles or well-described descriptions of single cases.—*Boston Med. and Surg Journal*.

SYPHILIS TARDIVA.—Professor Neumann, of Vienna (*Brit Jour. of Derm.*, October, 1882), in an essay before the Second International Dermatological Congress, summarizes his views as follows: 1. The chief etiological factor in tertiary syphilis is some latent virus resulting from imperfect treatment in the early stages, assisted by constitutional diseases such as tuberculosis, malaria, scurvy, diabetes, Bright's disease, and chronic alcoholism. 2. Tertiary syphilis cannot be considered as exclusively a metastasis, but in most cases as the result of some exudation persisting in the tissues, which, under the influence of some of the factors enumerated above, takes on new action. 3. Tertiary syphilis occurs in about six or seven per cent. of all cases of syphilis, and in the great majority does so in the third year after primary infection, although it may show itself earlier or much later. 4. Its most frequent manifestations are in the skin, mucous membrane, and bones. 5. So-called epidemic syphilis (*radesyge*, *skerljevo*, *frenjak*, etc.), is not a disease *sui generis*, but ordinary tertiary syphilis, along with some cases of late hereditary syphilis. 6. Hereditary transmission to a later generation than the first has not been proven. 7. The examination of the blood gives similar results to that in secondary syphilis; the amount of haemoglobin is invariably greatly diminished; the diminution of the number of the red corpuscles and increase of the white, although less marked, are equally constant changes.

PUERPERAL GONORRHOEA.—Kronig in the *Centralblatt für Gynäkologie*, 1893, No. 8, describes nine cases of puerperal gonorrhoea in which cultures were made from the lochial discharge. Pure cultures of the gonococcus were found most frequent from four to six days after delivery, and rapidly disappearing. The presence of these germes was accompanied by fever, in four cases rising to 104 F. The lochial discharge was increased, purulent, and not offensive. The lochia were observed to contain pus as early as four days after delivery. Seven of the nine cases showed marked fever after confinement, and had purulent discharge which persisted. The uterus was also deficient in involution. Two cases gave more positive evidence of septic infection, the first leaving hospital two weeks after confinement, returning two weeks later with an exudate in the pelvic peritoneum to the left uterus. The second patient was delayed in hospital with parametritis and gonorrhoeal tendo-vaginitis. The patient also suffered from tendo-vaginitis of the right elbow and right hand. The exudate in the pelvis was accompanied by a temperature of 104°.

The following conclusions are drawn from the cases in question: In patients suffering from gonorrhoea, infection may easily travel to the interior of the uterus after labor; this infection may cause fever; this germ does not usually unite with others to produce mixed infection; gonorrhoeal infection in the puerperal state is seldom directly dangerous to life, but leads to subsequent disorders, especially to infection of the endometrium, fallopian tubes, and the tissues about the uterus.—*American Jour. Med. Sciences*.

THE BROMIDES IN EPILEPSY.—In a recent paper Eulenburg gives the preference to a mixture of the bromides, and considers the best combination to be two parts of the potassium salt, two of sodium, and one of ammonium. He does not believe in the idea that the higher atomic weight of the alkali or alkaline earth forming the bromide the more powerful is its action. This is shown by one example among several. The atomic weights of potassium and calcium are almost alike, but the bromide of the latter is four times weaker than that of the former. Erlenmeyer first called attention to the advantage of administering bromides in water saturated with carbonic acid, and there is a preparation of "brom-water" distinguished by his name, and containing bromides in the proportion of two of potassium, two of sodium, and one of ammonium, which is an excellent and palatable form. It seems to be considered as established that the aggregate dose of the mixed bromides is much more active than the same amount of one salt, and the administration in carbonic acid water, apart from the greater stability of the solution, is more free from the risk of cumulative action or bromism. A very serviceable mode is to dispense the three bromides in powder form along with carbonate of sodium and citric acid, so that an effervescing draught is formed on mixing with water. This has the advantage of preserving the somewhat unstable ammonium bromide. These salts ought neither to be taken undissolved in the powder or pill form, nor in concentrated solution. The latter should be freely diluted with water. With regard to the dosage the chief point to be borne in mind is not to give less than is necessary, and therefore sufficient ought to be taken not only to lessen the number of attacks, but to produce a lasting diminution in the excitability of the nerve centres. To obtain this, the dose will vary in different individuals, but as a rule with adults it would seldom be less than seventy-five grains, and rarely over two and one-half drachms, *per diem*. Voisin advised that a sufficient quantity should be given to produce anaesthesia of the pharynx, but this is not always a safe criterion, as it varies in individual patients. The daily dose should not be divided into more

than two or three single quantities. The time of administration will vary with the onset of the attacks. Should they be wholly by day, then two large doses, one morning and one afternoon, will answer best; while in the case of purely nocturnal seizures a large quantity late in the evening is indicated. In the others, two full doses morning and evening, or three doses, morning, afternoon, and evening, are the most useful; and in all cases shortly after a meal. The treatment should be continued for two if not three years after the occurrence of the last seizure. It ought not to be discontinued for slight symptoms of bromism; the patient ought rather to take every means to improve the general health. The question of increasing or diminishing the dose during the treatment, Eulenburg answers by saying that when the proper dose is reached it ought to be continued during the whole course, as any lessening is as a rule risky, and liable to be punished by the occurrence of an attack. There are cases when the bromides do not suit, or are not well borne, or remain quite inactive; but these are comparatively few in number. Where there is intolerance of the drug, very careful administration of small doses combined with iron or arsenic, and attention to the general health, may overcome the difficulty; but where the action remains in abeyance with no effect upon the seizures, or as in rare cases, excitement is produced, the bromides ought not to be persisted in, but recourse had to other remedies.—*Therapeut. Monatshefte*.

THE TREATMENT OF ACUTE INTESTINAL OBSTRUCTION.—L. Rehn, (*Archiv. für klin. Chir.*, bd. xliii, hft. 3, 4), speaking from personal experience, advises early surgical interference in cases of acute intestinal obstruction, and presents on the whole very good results. He gives a short history of thirteen cases of acute intestinal obstruction with ten recoveries through operative interference, most of which necessitated considerable manipulation.

In some cases the diagnosis regarding location was not clear, while in others he was able to locate it definitely. Most of the cases were the result of strangulation or torsion. One was due to an acute angle produced by mechanical pressure, resulting from suppurating masses; this was at once relieved by simply removing the pus pockets. In another case the occlusion was due to a displacement of the flexura sigmoidea through pressure induced by an abdominal pregnancy.

As usual the conditions found were rarely alike in two cases. The diagnosis was in most cases easy, eight times fecal vomiting was present. Rehn places great value upon auscultation of the abdomen in order to aid in localizing the peristalsis in cases where this can not be seen.

The author wishes to make a distinct classification between those cases in which obstruction arises outside of the intestinal wall, and those in which the lumen of the bowels is obstructed from the interior. This latter can only be considered secondarily in acute strangulation, since the fate of the tied bowel may be already sealed before any marked symptoms of obstruction of its lumen present themselves, hence strangulation of the bowel, in the author's opinion, can be more certainly diagnosed if the attack is sudden, grave; accompanied by severe pain and followed soon by collapse. Such cases must be treated on a similar plane as strangulated hernia, namely, prompt surgical interference.

The author believes that such strangulations are more dangerous to the vitality of the bowel than cases of strangulate hernia. The complication with suppurating processes, such as typhlitis, require that the attention be directed to a careful removal of all products of suppuration. In cases of chronic increasing obstruction the author gives no precise regulations regarding diagnosis or treatment.

If operation becomes necessary he prefers enterostomie, and only in those cases where a definite knowledge of the location and nature of the obstruction is present. An exploratory incision may often be necessary to establish this.—*Med. and Surg. Reporter*.

OLEUM SUCCINI AS A RUBEFACIENT.—Oil of amber is a good remedy long since out of fashion. It is obtained by the dry distillation of amber, and purified by subsequent rectification. The crude oil is a thick brown liquid having a strong empyreumatic odor and a hot taste, whilst the rectified oil is colorless or yellowish, and has a specific gravity varying from 880 to 990. It is a powerful local irritant, and has been used with success in the treatment of rheumatism, lumbago, and sciatica. It enters into the composition of two old-fashioned remedies—Roche's embrocation and the Haarlem oil—and in many parts of the country seems to be highly valued as a remedy for whooping-cough, the directions being that it is to be well rubbed into spine night and morning. A good liniment is made by mixing together equal parts of oil of amber, spirit of camphor, and spirit of hartshorn. The oleum succini seems to have found a footing in most of the Continental Pharmacopœias, and in America is extensively employed as a local application to the chest in cases of incipient phthisis and chronic bronchitis. It is given internally in doses of from 10 to 20 drops, either in the form of an emulsion or, better still, in capsules. It is useful in flatulent dyspepsia and in hysteria accompanied by globus. Wood says that in the hiccup it is probably next to musk the most efficient remedy. It is not free from toxic properties, for a single dose of a tablespoonful gave rise to persistent vomiting and diarrhœa, with symptoms of collapse. The patient recovered, although she aborted. It is not likely that it will find much favor as an internal remedy, but as a local application its rubefacient effects will be found useful.—*British Medical Journal*.

LIVING AND CHEMICAL FERMENTATION.—Fermentation, as is well known, is classed in two categories, the one depending on living beings (vital fermentation), the other depending exclusively on chemical processes independent of life, and capable of developing in absolutely sterile media (chemical fermentation). The fluoride of sodium which at one per cent. stops instantly and definitely all vital fermentation, and with it all manifestations of life without suspending chemical fermentation, permits the appreciation of the phenomena of the other group.

The addition of one per cent. solution of fluoride of sodium preserves organic matter from all putrefaction, even at a temperature of 40° to 45° C. All substances thus preserved, such as milk, blood, urine, bile, beaten eggs, fruits, fragments of animal tissue, saliva, pan creatine, gelatine, etc., presented after several months at 40° C., neither odor or any other alteration characteristic of the development of microbes. The sugar, the disappearance of which from an organic medium is one of the first microbial phenomena in living fermentation, is preserved totally in fluorated liquors. It is not in the precipitation of the salts calcium that the fluoride is sterilized; for the oxalate of sodium at one per cent. has not the same property; it retards only the beginning, and moderates the march of putrefaction.

The lactic ferment is destroyed by the fluoride of sodium at one per cent; it suffices generally to add to the milk 0.4 per cent. of fluoride. The sugar of milk is preserved in toto in the fluorated liquors.

The ammoniacal ferments of urine are inactive in the presence of fluoride of 1 per cent. The resistance to the action of this salt, as to that of the lactic ferment, is less than that of the microorganism of putrefaction and of that

of the moulds. The quantity of the urea in fluorated urine is invariable.

The fluoride of sodium at a dose of 0.3 per cent. arrests the alcoholic fermentation of sugar instantaneously.

The fluoride of sodium at the stated dose then prevents the development of living elements in organic liquors and tissues. Inferior doses are even sometimes sufficient to completely sterilize; but always, even in very small doses, the appearance of fermentation is retarded and the intensity is diminished. The soluble ferments—invertine, trypsin, emulsine, etc.—preserve their activity in the presence of fluoride of sodium. The products of fermentation are the same whether the fermentation occurs in the presence or the absence of this salt. The natural digestive juices—gastric juice, pancreatic juice, and the digestive juice of maseeration—preserve in the presence of the fluoride their normal property. After several months these soluble ferments are not destroyed by the salts by 1 per cent. at a temperature of 40° C.

The alcoholic fermentation of saccharose presents two phases; one is an inversion of the sugar—a chemical phenomenon; the other is the splitting of the inverted sugar—a vital phenomenon; the fluoride of sodium stops only at the second fermentation.

The blood may transform the glycogen into reductive sugar, by means of the distaste that it contains; the fluoride of sodium does not prevent this fermentation.

The liver separated from the organism and free from blood by intravascular washing, transforms its glycogen into sugar. This transformation is possible in the presence of one per cent. of fluoride of sodium, that is to say, in the very conditions in which the life of the cellular elements is impossible; hepatic glycogenia, therefore, is a phenomenon of chemical fermentation. Furthermore, hepatic masecractions kept sterile by the fluoride of sodium, preserve the power of transforming the glycogen into sugar, during weeks and months, that is to say, during a time infinitely longer than the possible duration of life of the cellular elements of the liver.

The defibrinated or oxalated blood consumes its oxygen, and produces carbonic acid gas. The fluoride of sodium stops completely and definitely this phenomenon of oxydation; the nature and the gas of the fluorated blood remain invariable. The transformations which occur in the non-fluorated blood are the phenomena of the vital respiration.

The green parts of the vegetables lose by the action of fluoride of sodium, the property of decomposing carbonic acid gas and liberating oxygen. The chlorophyllian function, then, is a vital phenomenon.

Finally, the fluoride of sodium at one per cent. kills every living thing, and opposes the development of vital fermentation without arresting chemical fermentation. It permits the determination of the nature of the phenomena having their seat in an organic medium, and explains whether they belong to a vital action or to a diastasic action.—*Modern Medicine and Bacteriological World*.

INVESTIGATIONS ON PSORIASIS.—Prevalent as psoriasis is, its nature and causation are still obscure. Dr. Nielson, of Copenhagen, is the latest inquirer, and to some of his results we may direct attention. The earliest clinical phenomenon of the commencing spot is hyperæmia; the production of scales is, on the contrary, a later addition. Besides the very frequent brownish pigmentation, particularly after arsenical treatment, the eruption sometimes, when arsenic or iodide of potassium in large doses has been given, leaves a leucoderma behind, always manifesting itself in minute points, which may, however, be numerous, and may, in individual cases, linger unchanged for months. In 827 cases he

found but one limited solely to the palms and soles. He adds that there are in literature but two instances in which, after having been for several years confined to these localities, it spread to the more ordinary situations. A genuine universal affection of the skin, without any sound portion, in psoriasis patients, is only met with in those conditions called exfoliative dermatitis, pityriasis rubra, etc., and these differ clinically so much from psoriasis, that they should certainly be regarded as a dermatitis, often of varied pathogenesis, which complicates psoriasis, and in which it disappears. Such cases which now and then appear after irritating treatment, seem also to be seen with relative frequency in chronic alcoholics and persons suffering from chronic rheumatic joint diseases. They are rare, but evince a tendency to recur. Speaking of heredity, he says, "We have as yet no means of deciding that the psoriasis in several members of the same family should be ascribed to it, for such can at least be equally well explained by contagion. Sometimes, particularly in certain situations, as the scalp, the forehead, the face, occasionally on the chest and back, the eruption is covered with dirty yellow, fatty scales, though on other parts quite characteristic. The same thing is met with also in syphilis, and is apparently due, and such is Unna's view, to a local combination of psoriasis and seborrhæic eczema." Nielson then discusses the various opinions held as to the pathogenesis of psoriasis. 1. As the eruption of a constitutional disease or of a special blood infection. Besides other arguments against this, he points out that it has in general the character of a simple skin disease, no implication of mucous membranes having been noticed, nor any complications which have a direct relation to it. Although some circumstances in support of this view can be brought forward, it does not seem probable that it is a constitutional affection. 2. As a neuropathic disorder. A careful examination of the theories of Polotebnoff and others leads him to the conclusion that it is not likely that the origin of psoriasis is to be sought for in the nervous system. 3. As an idiopathic skin disease. This is the opinion of some of the older authors, who thought it was frequently inherited or occasionally acquired as a result of diseases which, as infectious ones, produced a deep modification of the skin. A predisposition of the integument was assumed, causing it to react readily to irritants, but of the nature of this predisposition we know nothing, and it is as unsubstantial as the so-called "dartrous diathesis." 4. As a parasitic affection of the skin. This theory, so ably advocated by Lang, is the one which Nielson regards as the most probable. It is true that the supposed parasite of Lang has been shown, like other supposed parasites, to be of artificial origin, so that at present the microorganism is unknown, but this does not invalidate the hypothesis. It may be that it belongs to the hyphomycetes, and that, as in lupus, the numbers are scanty. He quotes a series of cases where there was apparently communication by contagion. He points out that disturbances or changes in the nutrition of the skin, which must certainly affect the nutrition provided for the parasite, may explain the disappearance and reappearance of the eruption, and the same may be said of internal remedies acting on the soil. If this view be accepted, the necessity of carrying on the treatment till every trace of the disease has vanished becomes of paramount importance; nay, further, as Bienstock has observed, a subsequent treatment of the whole body with anti-parasitic remedies should be employed, and the patient ought to be kept for some time under observation, in order finally to prevent the possibility of fresh infection. The clothes, bed linen, and such toilet articles as spores may cling to, must be disinfected, while the patient must avoid association with other persons affected with psoriasis, unless they

have undergone a like course of treatment. Only in this way are cases of psoriasis to be thoroughly cured.—*Monatsshefte für praktische Dermatologie*.—*Edin. Med. Journal*.

TREATMENT OF AN ATTACK OF HEPATIC COLIC.—Coladon (*Wiener medicinische Presse*, No. 33, 1892) describes what he concludes to be the best treatment for hepatic colic, from observations made in his own case.

The treatment varies in the three stages of the attack.

The author describes as prodromes, which hitherto have been but little known, a peculiar somnolent tendency, a general relaxation even after a night spent in sound sleep, irregular pulsations, particularly of the temporal arteries, false sensation of hunger, emptiness in the epigastrium or nausea, sensation of contraction of the œsophagus, eructations and polyuria.

Then pressure in the hypochondrium, distension of the abdomen and pain in the region of the gall-bladder set in. The treatment of this stage must be expectative; purges and emetics do harm. The author recommends physical and mental rest and careful dieting.

When the attack is developed, injections of morphia, particularly in the beginning, are dangerous, owing to possible invagination of the calculus. Coladon recommends chloroform, which, if not used to complete anesthesia, does not at all debilitate the contractility of the bile-ducts, but merely reduces their sensitiveness. Hot water bags, one to the epigastrium, the other to the back, soon quiet the pain.

In the decreasing stage a purge will relieve the intestines of gall-stones. At the same time cholagogues are in place; among these the best is podophyllin in small doses for several days. Cold douches to the right hypochondrium also prove useful.

As a mechanical prophylactic, the author recommends massage of the right hypochondrium, which the patient can execute on himself for fifteen minutes every morning and evening.—*Dietetic Gazette*.

THE PRESENT STATUS OF CORROSIVE SUBLIMATE IN SURGERY.—I want to say a few words on a subject in which we are all interested—the present status of corrosive sublimate in surgery. For a long time all of us who work in general surgery have wondered why we failed to get good results in cases where we thought we had done everything that could be done to assure an antiseptic condition of the part. Two years ago I ceased the use of solutions particularly in fresh wounds, and have lately ceased to use them at all, even in suppurating conditions. Three years ago Welch, of the Johns Hopkins University, made a report in which he mentioned numerous experiments with sublimate to find out something about the action and power of this drug. He has given us reasons why we oftentimes fail in getting an aseptic condition or having an aseptic outcome of a wound from the use of this substance. It has been proven that the inhibiting power of bichloride of mercury is just so much, which is in proportion to the albuminous material it has to deal with. I think it is proven beyond all doubt by his experiments and by those of his assistants, particularly Abbott, that the present position of bichloride is rather against its use, and that it does more harm than good. If the solution be of sufficient strength to have any effect upon germs already there, it will cause necrosis and prevent healing of the wound, as well as producing a better nidus for the production and operation of other microorganisms.

I will read from Dr. Abbott's paper his conclusions upon this subject, which may be of interest:

"What conclusions are we justified in drawing from such results as those obtained in the experiments here reported?

"1. It is seen that under the most favorable conditions a given amount of sublimate has the property of rendering

inert only a certain number of individual organisms. That is to say, the process is a definite chemical one taking place between the protoplasm of the individual bacteria and the sublimate in solution.

"2. That the disinfecting activity of the sublimate against organisms is profoundly influenced by the proportion of albuminous material contained in the medium in which the bacteria are present.

"3. That the relation between the golden pyogenic staphylococci and sublimate is not a constant one, organism from different sources and of different ages behaving differently when exposed to the same amount of the disinfectant for the same length of time.

"4. That the organisms which survive the exposure to the sublimate may experience a temporary attenuation. This attenuation, however, may be caused to disappear by successive cultivation in normal media.

"5. That by the method employed in these experiments, it is possible to select from a culture the most resistant forms of that culture.

"6. That many of the results of previous experimenters, who have assigned to corrosive sublimate more powerful disinfectant properties against the staphylococcus pyogenes aureus in cultures than the observations reported in this paper indicate, are attributable to the neglect of certain precautions now recognized as essential to the proper conduct of such experiments.

"In the light of these experiments and those of the experimenters quoted in this paper, it is plain that for use in surgical practice the solutions of corrosive sublimate do not possess all the advantages hitherto attributed to them.

"To the employment of sublimate solutions upon wound surfaces it is plain that there exist at least two serious objections:

"First, the albumen of the tissues and fluids of the body tends to diminish the strength of, or indeed renders entirely inert, the solution employed.

"And second, the integrity of the tissues is materially injured by the application of solutions of this salt.

"The first objection cannot be met with certainty, for the surgeon possesses no means by which he can determine the albuminous material with which his solutions are to come in contact, and in any case this large amount of albuminous material is an almost insuperable obstacle to complete disinfection with sublimate. He is, therefore, never in a position to say, *a priori*, that his efforts at disinfection of the wound are, or are not, successful.

"The second objection is equally serious. During the past two years we have had sufficient evidence to lead us to believe that the normal tissues and fluids of the body possess the power of rendering inert many kinds of organisms which may have gained access to them. This function is therefore diminished, or indeed may be quite destroyed, by any agent which brings about alterations in the constitution of these tissues. We know that just such changes as those to which we refer are known to follow the application of sublimate solutions. It is plain that if we bring about in these tissues a condition of superficial necrosis—the condition following upon the application of sublimate—they are much less able to resist the inroads of infectious organisms than they would have been had they been left in their natural condition.

"As a disinfectant in the strict sense of the word, there are perhaps few substances which possess the property in a higher degree than does corrosive sublimate, but at the same time there is nothing which is employed for this purpose that requires greater care in its manipulation in order to obtain its best results, than does this salt. As we have seen, its action is influenced by a number of conditions

which in practical application it is difficult, if not quite impossible, to control

"For these reasons we seem hardly justified in continuing to give it the first place in the list of substances which may be employed practically for the purpose of rendering harmless materials containing the germs of infectious maladies."

I have found in my practical work, that since I ceased the use of sublimate solutions I have had much more uniformly good results by using simply sterilized water.—Ap. Morgan Vance, M.D., in *Med. and Surg. Reporter*.

COPAIBA IN CIRRHOSIS OF THE LIVER.—Georginewski (*Revue de Therap. Medico-Chirurg.*) has employed the balsam of copaiba in twelve cases of hepatic cirrhosis. In all of the cases the action of the drug was remarkable. The urine increased two or three times its usual amount, and continued so for eight days. There was a great reduction in the ascites, and a marked improvement in the general health. In one case the symptoms did not return during eight months. The copaiba, however, caused some inconvenience—coated tongue, distention of the stomach, and occasionally diarrhea. Georginewski subsequently studied the action of copaiba on dogs. The toxic effects were only induced after the administration of very large doses two hundred times larger than therapeutic doses. In this quantity copaiba caused diarrhea with blood stools. At the autopsy no changes were observed in the kidneys beyond those which could have been attributed to excessive functional activity.—*University Medical Magazine*.

THE RELATION OF EYE DISEASES TO NASAL CONDITIONS.—The time is not far past—during the developmental period of specialism—when the treatment of ear diseases was associated with that of eye diseases. It was not long, however, before the total dissimilarity of the conditions divorced the union, and ophthalmology developed as a separate specialty, while the throat, nose and ear were recognized as more closely related. Until a comparatively recent date no literature taught the close interdependence of certain conjunctival and corneal diseases, as well as lachrymal troubles, upon nasal abnormalities. There now exists, however, an abundant record of this subject, and so firmly has the necessity for nasal treatment in certain eye diseases impressed itself upon the oculist that patients are constantly directed to seek relief for their nasal and pharyngeal condition while being treated for their ocular troubles. Indeed, the close relationship between the two organs has led one of the foremost oculists to associate nasal treatment with his special practice.

The presence of phlyctenular conjunctivitis or keratitis, which is also known as serofulous or eczematous conjunctivitis or keratitis, is almost invariably associated with an irritative rhinitis and excoriations about the nares, and a tardy recovery is transformed into a rapid cure by appropriate treatment of the unhealthy membrane of the nose. The influence of nasal conditions upon the lachrymal apparatus is most extensive and pronounced. In the *Medical News*, February 6, 1885, Dr. Harrison Allen published his observations upon cases from the clinics of Dr. Norris and Dr. Oliver, and found that in twenty cases of lachrymal obstruction there existed coincident chronic nasal catarrh; he further adds, however, that the proportion cannot be presumed to be constant, since in his own practice the association is much less frequent. He holds that obstruction occurs where there exists 1, submucous infiltration or atrophies from chronic nasal catarrh, or 2, where there is necrosis or osteitis. In a later paper (*Transactions Philadelphia County Medical Society*, p. 52, 1890) the same writer cites additional cases to show how displacement of the middle turbinate bone or a hyperplasia of the mucous mem-

brane may cause pressure and congestion terminating in lachrymal obstruction.

There is a close etiological relation between measles, and other exanthemata, and lachrymal stenoses, which is explained by the inflammation of the naso-pharyngeal mucous membrane, and it is in this class of obstructive cases that abscesses are most frequently met. In a paper read by Dr. de Schweinitz before the Philadelphia County Medical Society (Transactions, p. 173, 1892), he directs attention to a class of cases in which there is obstruction to the drainage system of the eye and which are most successfully treated with the aid of the rhinologist. The conditions justify a division into those cases where:

1. The lachrymo-nasal duct is obstructed by a turgescence of the entire mucous membrane and not by a local stricture.

2. A stricture consequent upon a cicatricial condition following a chronic nasal catarrh, causing retention and supuration from retained muco-organisms.

3. Obstruction due to atrophic rhinitis causing not a stricture, but stenosis from contraction of the entire lumen.

4. Periodic epiphora due to acute obstruction from pressure of a hypertrophy of the mucous membrane covering a turbinate, *e. g.*, in damp weather.

5. Neoplasms pressing against the lachrymo-nasal duct, as in syphilis.

6. Local obstruction at the nasal orifice of the duct due to a valve-like flap of membrane, local ulcer or a cicatrix from injudicious application of cauterizants.

8. Cases due to pressure from asymmetry of the face, or local conditions obstructing the canaliculus, no matter what the cause, the character must be recognized and must be removed before this annoying condition can be successfully combatted.

While, therefore, a casual relation unquestionably exists between certain ocular and nasal disorders, it must not be inferred that they are inseparably associated.—*University Medical Magazine*.

THE INCUBATION PERIOD OF INFECTIOUS DISEASE.—Although we are taught that each specific disease has its particular period of incubation, it must be admitted that the point is not one that admits of dogmatic assertion. It is virtually admitted that the period in every instance comprises tolerably wide limits of time, and owing to the extreme and insuperable difficulty of establishing the precise moment of infection, the matter is obviously one which must be considered as open to question. It has been suggested, not without a show of reason, that the duration of the period of incubation depends less on the nature of the disease than upon the quality of the "soil," *i. e.*, the individual susceptibility to the particular poison, and to the dose of the poison. We know as a matter of scientific observation that the period of incubation after experimental inoculation of the virus is markedly less than when the disease is contracted in the usual way. This would seem to bear out the contention that the dose of poison has a powerful effect in abridging the period of incubation. The point is important because some stress is apt to be laid on the supposed duration of the period of incubation in the diagnosis of certain diseases—at most an uncertain, and often a fallacious, guide.—*Medical Press and Circular*.

ACCESS TO THE BLADDER.—The relative advantages attaching to the modes of reaching the bladder by the suprapubic and the perineal operations respectively has of late years, since the introduction of the first-named method, become a frequent topic of discussion among surgeons; and the question was once more revived at the meeting of the Royal Medical and Chirurgical Society during the past

week. Mr. Bryant described a case of fibrous polypus of the prostatic urethra, which he had been able to relieve with complete success after exploring the urethral canal through the perineum; and in giving an account of the treatment he especially insisted on the fact that this would have been utterly abortive had the newer method of incision in the suprapubic region been adopted in the case, as he would thereby have been prevented from discovering the nature of the obstruction to micturition, which consisted of a large polypus growing in the floor of the urethra, and which could not possibly have been reached from above. Mr. Reginald Harrison also spoke in condemnatory terms of the modern operation, affirming that its greater fatality is due to the fact that it is resorted to in many cases in which it has been inapplicable. In cases of bleeding consequent on growths in the prostatic urethra, he thought the perineal method of exploration ought always to be adopted; and other speakers seemed by the general tenor of their remarks to hold a similar opinion. There is undoubtedly sufficient ground in the histories of the unsuccessful results in this connection to justify the suspicion that there may be reasons against the operation itself which will explain the frequent unfortunate issues. It is also very probable that the larger facilities the newer method appears to offer for operative procedure may sometimes encourage resort to it under conditions that might well be held to be doubtful by very cautious surgeons; and if the whole question were now to be discussed in the light of the most recently acquired experience, it would probably lead to the formulation of definite and valuable rules for future guidance.—*Medical Press and Circular*.

ABDOMINAL MASSAGE.—This excellent mode of treatment has won its way into favor with scientific physicians in all parts of the world, and at the present time no one would think of denying its great value in certain forms of abdominal disorders, particularly those of the bowels and visceral prolapse.

A great variety of procedures have been proposed for the application of massage to this portion of the body, one of the most recent of which is what is known as Sahli's method, which consists of the application to the abdominal walls of a cannon ball with a rolling movement, the patient lying upon the back. Ivanoff has suggested the employment, as a substitute for the cannon ball, of a hollow wooden or celloidine globe partially filled with shot. The use of bags partly filled with shot has also been suggested, and the writer has made extensive use of both the cannon ball and the shot-bag with excellent results. The advantage of this method is that the patient can use it himself, although of course it can be more advantageously employed by an attendant. The cannon ball and shot-bag are of special service in cases of atony of the stomach and bowels. For the relief of the last-named condition, the most prominent symptom of which is constipation, due to the lack of ability of the muscles of the colon to contract upon the contents of the bowels, the ball or bag should be applied first to the lower part of the abdomen on the right side. It should be rolled upward to the ribs, then across the body, then down upon the opposite side, continuing on in a nearly circular movement. The application is best made before breakfast or half an hour after breakfast.

In cases of dilatation of the stomach, or gastric insufficiency, in which the muscular structures of the walls of the stomach are unable to expel the contents of the organ at the proper time, so that the food, being too long retained, undergoes fermentation, the movement should be similar, but in the opposite direction. The ball, being applied first upon the left side, upon a level with the umbilicus, is moved

upward close under the ribs of the left side to the epigastrium, and down upon the opposite side on a level with the umbilicus, continuing the movement as before. To aid the stomach in ridding itself of its contents, the application should be made about three hours after eating. The writer has found this an excellent means of relief in cases in which gastric insufficiency is a marked feature. The shot-bag may be used precisely in the same way as the cannon ball or the hollow globe filled with shot. Manipulations may be made with the hands in such a way as to accomplish the same purposes. For manual massage, however, an attendant is of course indispensable.

Abdominal massage is beneficial in a great number of other conditions besides those mentioned. The following are some of the leading therapeutic effects which have been demonstrated as resulting from the proper application of the abdominal massage:

1. The contents of the abdominal canal are moved onward.
2. The portal circulation is accelerated, and also the circulation of the lymph in the lymphatic channels.
3. Absorption is stimulated by increased activity in the portal circulation.
4. The production of gas is diminished and its expulsion encouraged.
5. The respiratory movements are increased, thus relieving hepatic congestion, and general visceral congestion in the abdomen.
6. The nerves and nerve centers of the abdominal sympathetic are stimulated, and thus the vital activity of all the abdominal viscera is accelerated.—*Modern Medicine and Bacteriological World.*

POSITION OF THE TONGUE IN PERIPHERAL FACIAL PALSY.—Most authors have described the tongue as being perfectly straight in paralysis of the facial of peripheral origin. Erb and others have put the description of a position of deviation down to erroneous observation, inasmuch as the act of opening the mouth leads to a reaction towards the sound side, and when the tongue is pushed out its edge appears nearer the paralyzed angle, thus giving the appearance of an oblique position. Others hold that it points sometimes to the one side, sometimes to the other. Hitzig, in a recent note, is of opinion that the tongue in slight cases of peripheral paralysis never deviates to the one side or the other. In severe and long continuing cases, on the other hand, from fracture of the base of the skull and other causes, it may deviate considerably towards one side, but that side is without exception the sound and never the paralyzed side. In all these cases the mouth is drawn in a marked manner toward the unaffected side. The tongue should not be in the middle of the mouth, but more to the paralyzed side; it stands, however, so that its edge does not touch the mouth angle. If now the mouth is drawn by the finger into the straight position and the tongue protruded, the median line is assumed by the organ. The oblique position of the tongue is therefore a consequence of the obliquity of the mouth, and not the result of paralysis of any muscle. Moreover it actually does deviate in many cases, contrary to the teaching of many writers. Hitzig's explanation is that the tongue normally holds a definite position to the angles of the mouth, and in facial paralysis it involuntarily retains this relation.—*Berlin, Klin. Wochenschr.*—*The Practitioner.*

ŒSOPHAGEAL AUSCULTATION.—The anatomical position of the œsophagus within the thoracic cavity brings it into close relationship with the other chest organs. Looked at from the larynx, trachea and lungs, which are in its immediate neighborhood in the upper part of its course, the œsophagus runs farther downwards close by the base of the heart, along the line of the aorta. A consideration of this

relationship induced Dr. A. Hoffmann, of Düsseldorf, two years ago, to make auscultatory observations through the œsophagus. He made use of a soft stomach tube, such as is in common use for the purpose of lavage. The upper end of this was furnished with a short, thick glass tube, to the upper end of which again was cemented an ear-plate. The tube itself was furnished from its point with centimetre markings, so that one could at any time readily judge by a simple glance how many centimetres the point of the sound had passed beyond the teeth. In the course of the last two years, in most of the patients in whom he has washed out the stomach, he has done so with the gum elastic tube described, and at the end of each lavage, when the stomach was empty, he has substituted for the usual glass tube connecting the sound with the funnel, the glass tube with attached ear-plate. When the plate is attached to the ear we hear, on gradual withdrawal of the tube with short pauses, a series of different auscultatory phenomena. In the first place we observe a rumbling and gurgling, which arises in the stomach, or in the sound, as the fluid contained there is disturbed either by respiratory or by gastric movements. At the same time, if the sound is still introduced more than forty-five centimetres, that is, with the point still in the stomach, we hear the heart sounds distinctly, especially if the person examined is made to hold his breath for a short time. In the third place, we hear the sharp respiratory murmur arising in the larynx and trachea. If the sound (or, if one may give a name to so simple an instrument, the endostethoscope) is further withdrawn, the heart sounds become still more distinct, and will attain their greatest intensity when the sound is at a depth of only thirty-five to thirty centimetres. If the patient is made to hold his breath, we hear the sounds with startling distinctness; and the systolic sounds are frequently heard as an accentuated double beat; the diastole is less pronounced. Between thirty and twenty-five centimetres the sounds become again softer, and have somewhat altered characters. The double sound is not observed. Higher up, the heart sounds are no longer audible—only the breath sounds. Further observations were made with an elastic gastric catheter instead of a very soft sound. In sensitive patients the pharyngeal mucous membrane was in the first place anesthetized with cocaine. The instrument was introduced, without previously emptying the stomach, only to a depth of forty centimeters, and then auscultations were made at every five centimetres withdrawal, or even oftener. This method succeeds, especially if patients are examined some hours after a meal, without much difficulty. Should vomiting threaten to occur, the auscultatory apparatus can be laid aside for a time. This expedient is, however, seldom necessary. The result of the examination is identical with that obtained with the soft tube.

It is not yet possible to give a definite opinion of the diagnostic value of this method. This much can be asserted: that in individual cases auscultation of the heart with the endostethoscope cleared up doubtful murmurs. Thus, in one case—that of a baker's apprentice of sixteen years—in which increase of cardiac dulness to the right as far as the mid-sternal line had been observed, but no cardiac murmur could be distinguished at the usual spot of selection for auscultation, œsophageal auscultation revealed a marked præ-systolic murmur. A second patient—a butcher aged thirty years—had, according to his statement, been treated for heart disease several years previously. The præcordial dulness was normal, and over the heart there were no murmurs audible, though the first sound at the apex was rough. From the œsophagus a very loud systolic murmur was heard, which had its greatest intensity between thirty-five and thirty centimetres; between thirty and twenty-five centi-

metres both heart sounds were distinct, but the murmur was very faintly audible. It is an important question whether the point of origin of the murmur, or in a word, the special diagnosis, can be established in this way. Obviously this method of examination of the heart can never supersede other methods; on the contrary it will at most be able to supplement them. We need not however be without hope that œsophageal auscultation may also render possible definite conclusions as to the nature of some cardiac lesions. Murmurs of the right heart will seldom be in question. For those, however, which arise in the left heart, in consequence of the anatomical position of the œsophagus, there are ascertained points of observation for arriving at a decision. With a deeply introduced probe one auscultates in the first place the descending aorta, and hears any murmurs (stenotic) propagated along the same. But at that spot also murmurs will be communicated from the base of the heart; and become better marked higher up. Still higher, beyond the cardiac region, the aorta only is auscultated. A definite point for the diagnosis of the place of origin of the murmur will be given therefore according to the spot where the murmur has its greatest intensity, as well as according to the character of that murmur, whether it be systolic, præ-systolic, or purely diastolic. Auscultation of aortic aneurysms by this method is not without danger, and must only be undertaken with the greatest caution. Accidental murmurs, such as those due to chlorosis, were also detected by Dr. Hoffmann with the œsophageal instrument, but less distinctly than by means of auscultation through the chest wall. Whether endostethoscopic auscultation of the larynx, trachea, lungs, or stomach is likely to prove of special diagnostic interest, cannot yet be decided from the small number of patients who have been examined in this direction.—*Centralblt. f. klin. Med.—The Practitioner*.

THE VALUE OF GELATIN AND GELATIGENOUS FOODS.—

Although gelatin is an albuminoid, rich in nitrogen and in many ways closely related to albumin, it cannot take the place of the latter in a normal diet. It is, however, a natural ally and companion of proteid matter and when administered with the latter as a part of the daily food, nitrogenous equilibrium is established with a smaller quantity of proteid than when the latter food is taken alone. If, on the other hand, gelatin or gelatigenous foods only are fed then death speedily follows from nitrogen starvation. This condition of things is certainly very suggestive as showing the need of the animal organism for a certain form of nitrogen; a need which can be wholly supplied only by proteid matter. One reason why gelatin cannot take the place of albumin in repairing the waste of the tissues is to be found in its rapid and complete transformation within the body into katabolites which are eventually excreted in the form of urea. In other words, gelatin is *quickly* and completely broken down into waste products.

While therefore, gelatigenous foods have little or no *direct* value as a part of normal diet, it is not to be assumed, as has been sometimes done, that they are wholly worthless and devoid of all nutritive properties. Collagenous foods, under the influence of the acid gastric juice, are quickly swollen up and are eventually transformed into soluble and diffusible products—gelatoses and gelatin-peptone—which are rapidly absorbed. Further, when once acted upon by gastric juice, they are similarly digested by the alkaline pancreatic fluid, and hence run little risk of passing through the alimentary tract unchanged. Gelatin itself is equally digestible in gastric and pancreatic juice, but collagenous matter can be dissolved by the pancreatic ferment only after it has been subjected to the preliminary influence of acid fluids. The real value of gelatine as a food lies in its

ability to protect and diminish the consumption of the more important proteid foods. This power rests primarily upon the ease and rapidity with which it is decomposed within the body, giving it value as a substitute in a limited sense for albuminous matter, the metabolism of which, as already stated, it diminishes. Its value, however, is limited since it cannot be utilized for the purpose of building up or repairing the tissues.

Containing a somewhat greater proportion of nitrogen than the ordinary forms of animal proteids, gelatin yields a larger amount of urea by decomposition and consequently when ingested, especially in large quantities, may give rise to an excessive elimination of urea, inducing thereby increased diuresis and consequent thirst and demand for fluid. Further, Schiff is authority for the statement that gelatigenous substances promote the secretion of gastric juice, and that consequently they belong to the group of peptogenic foods.

Gelatin has also been observed to produce a slight diminution in the metabolism of non-nitrogenous foods; hence, as stated by Yeo, "it may be accepted as a practical conclusion that gelatin is an 'albumin-sparing' food and that alimentary substances containing it tend to prevent the destruction of albuminates and fats." Especially useful is gelatin in cases of fever where the stability of the "organic albumin" is threatened, and under such circumstances the capacity for assimilating proteid food is greatly diminished by the addition of gelatin to the naturally light diet of the fever patient.

Without doubt, the efficacy of properly made beef tea as a nutrient is partially due to the gelatin it contains, for gelatin taken in this form, or indeed in the form of jellies, is well tolerated and easily digested. As Germain Sée has well said, gelatin may be taken in large quantity with impunity, and is to be looked upon as "an auxiliary means of conservation of our tissues. From this point of view, gelatin cannot be too strongly recommended, prepared in the most various forms and with a variety of flavors." Further, under all circumstances, as a constituent of soups and broths, it occupies an important position among animal food-stuffs as an agreeable albumin-saving nutrient.—*The Dietetic and Hygienic Gazette*.

THE PASSAGE OF MICROBES THROUGH THE SKIN.—Wasmuth describes experiments made both upon lower animals and upon man to determine the extent to which different micro-organisms can penetrate the skin. In man the pure culture of staphylococcus was rubbed into the arm; in animals, the cocci of erysipelas and anthrax. If the cultures were merely spread upon the skin, negative results were produced. By rubbing, it was found that the uninjured skin was permeable to these organisms, and that after they were introduced in this way, characteristic local and general disturbances were produced. The bacilli enter between the sheath and the shaft of hairs and not through the openings of the sweat or of the sebaceous glands.—*Boston Med. and Surg. Journal*.

SUSPENSION IN CHRONIC MYELITIS.—Kirchner (*Berliner klinische Wochenschrift*) reports a case of chronic myelitis in which complete cure followed treatment by suspension. The disease had commenced about a year before admission to the hospital, with loss of power and pain in the extremities. The reflexes were lost, and the muscles showed slight atrophic changes. There was also slight impairment of the mental power. After fifty suspensions the gait became normal, and the reflexes returned, the right knee-jerk being somewhat more feeble than the left. The patient was discharged as completely cured.—*University Medical Magazine*.

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SATURDAY, APRIL 22, 1893.

THE TREATMENT OF ASPHYXIA NEONATORUM.

Whatever theory may be accepted regarding the cause of extra-uterine respiration, the first effort of the physician in a case of suspended animation is to excite respiratory action.

This latter is usually accomplished by some method of exciting reflex action, such as slapping the child, irritating the fauces by means of the little finger introduced into the mouth—a measure that tends to remove any mucus that may be therein contained, dipping the child alternately into hot and cold water, friction, hot or cold rectal injections, or insufflation by means of the mouth of the accoucheur applied to the cleansed mouth of the infant. To accomplish insufflation various instruments have been invented, such as PIA's, CHAUSSIER's or DEPAUL's tubes, that are curved hollow canulæ that may be introduced into the trachea. GAIRAL's œsophore is virtually the same thing, as is also RIBEMONT's laryngeal tube, though this latter is furnished with a rubber bulb for insufflating. PROS DE LA ROCHELLE's insufflator or WOILLEZ's spirophore have nothing to commend them. In fact, no instrument is satisfactory, for the obstetrician must, if possible, have a method of artificial respiration that is always practicable and handy. Such methods have been suggested by various physicians, and all have met with more or less favor.

MARSHALL HALL placed the child on its back with the head raised, and rolled the trunk from side to side so as to compress and relax the chest, thus permitting the escape of fluids from the lungs; but CHAMPNEY has shown that it did not secure the ventilation of the lungs that was obtained by other methods. SYLVESTER placed the child in the same position, seized both hands or forearms in one hand, and extended them above the head and brought them down again to the sides at the rate of twelve to sixteen times a minute. HOWARD placed the back of

the child on his left arm with the head downward so as to open the larynx, and with the right arm the chest walls were alternately compressed and relaxed. PACINI placed the child on its back, and with the hands inserted in the dorsal aspect of the axilla pulled the shoulders alternately upward and downward. BAIN modified this latter procedure by placing the fingers in the anterior aspect of the axillæ with the thumbs over the outer ends of the clavicles. BYRD placed the back of the child's trunk on the palms of the hands, and alternately extended and flexed the head and lower extremities, while SCHROEPER advocated a similar movement with one hand under the head and the other under the buttocks. SCHULTZE held the child by means of the forefingers in the axillæ, the remaining fingers clasped across the child's back and the head steadied between the wrists. Then bending forward so as to hold the child in a vertical position with the feet near the floor, the weight of its body produces an inspiratory movement, when the operator straightens his body he swings the child forward, causing it to double up so that the legs and buttocks fall over upon the front of its thorax, producing an expiratory movement. The child should be dipped into hot water after every dozen movements, so as to partially restore the heat that is lost by swinging it in the air.

J. HARVIE DEW recently described a method in which the neck of the infant is grasped between the thumb and forefinger of the left hand, the head falling over backward so as to hold open the epiglottis, and the back resting in the palm of the hand. The knees are grasped with the right hand so that the right rests between the thumb and forefinger, the left between the fore and middle fingers. Then with the left hand the dorsal region is bent backward and the pelvis and lower extremities are depressed so as to cause inspiration; to cause expiration, the shoulders and chest are carried forward in the left hand bringing the thighs forward with the right hand and doubling them upon the abdomen, these movements being alternated.

W. E. FOREST lays the child on its face for an instant with the head and thorax lower than the pelvis, making quick but not violent pressure on the child's back to expel any fluids from the mouth. He then places the child in a sitting posture in a pail or tub of water that is as hot as can be comfortably borne; the child's head rests between the thumb and forefinger of one hand, the back being supported by the palm thereof, the child's hands with the palms to the front are held in the other hand, and are carried upward until the child is suspended by the arms, the buttocks being just raised from the bottom of the pail. In this position the child's head falls back, the operator leans forward, and, mouth to mouth, blows into the child's lungs. The child's arms are

then lowered until they rest across the front of the thorax, and its body is doubled forward and compressed between the operator's hands so as to expel the air from the lungs. These movements are rhythmically repeated at the rate of forty per minute until respiration is established.

FOREST's method seems the most practicable and desirable because it directly insuflates the lungs, it causes movements that increase the diameters of the thoracic cavity, and the child's temperature is kept at or above 100° F., thus avoiding the impediment to the heart's action that cutaneous cooling produces. CHAMPNEY's experiments showed that an appreciable amount of air could only be introduced into the collapsed lungs of a new-born infant by SYLVESTER's or SCHULTZ's methods or by intra-tracheal catheterization with air insuflation. The latter end is attained in FOREST's method by mouth insuflation; and his method avoids the cooling of the child's body that occurs while SYLVESTER's method is practiced, or the violence of SCHULTZ's method that may, as PROFESSOR LUSK has stated, cause fatal shock in very weak infants.

A MARINE BIOLOGICAL LABORATORY.

In the *Popular Science Monthly* for February, 1893, PROFESSOR C. O. WHITMAN, of the University of Chicago, directs the attention of the public to the project which has for its aim the maintenance and liberal endowment of a grand national seaside biological laboratory. PROFESSOR WHITMAN is peculiarly fitted to speak upon this subject, since he has, for some time, appeared as the champion of the cause he now advocates; he has, in fact, taken up the work begun by AGASSIZ and BAIRD, and carried it to a much broader scope. Essentially, the plan consists in the maintenance of the Marine Biological Laboratory as a grand, non-sectarian center for biological research; a center to which each of the biological departments of our colleges and universities may have access, and in which a corps of trained instructors, trained investigators and advanced students may carry on their studies with all the advantages of a marine laboratory. The object of such studies will be purely scientific, not utilitarian. The marine laboratory, as it now exists, was founded by private enterprise, and is maintained by private donation and by the contributions of interested institutions. The Marine Biological Laboratory is located at Woods' Holl, Massachusetts, a location offering many advantages for a central organization, as PROFESSOR WHITMAN clearly points out. At present it is in coöperation with some fifteen American institutions of learning, and among this number it is particularly significant to the medical profession to find the Harvard Medical School. The attendance during the year of 1892 was one hundred and ten

students and investigators, representing fifty-two colleges and universities. Thirty-five rooms with full equipment for independent research, and five general laboratories for the use of students and beginners, are at present provided. Everything about the institution indicates a healthful, enthusiastic growth. Already the scientific work of the Marine Biological Laboratory has won distinction for itself and for its supporters. An idea of the scope of the work of this institution may be obtained from the published summer lectures, which are edited under the supervision of PROFESSOR WHITMAN.

Notwithstanding its remarkable beginning, the needs of this enterprise are numerous. More institutions should unite with the observatory, and lend their influence, support, and students to its work. A number of branch observatories at various points on the Atlantic and Pacific sea coast should be established. A reference library of the most complete kind should be an integral part of the station. Laboratory equipment of the most approved character, for all lines of morphological and physiological research, should be provided. Liberal salaries for teachers and for original investigators should be paid—salaries of so liberal a nature as to make the worker absolutely independent of financial concern. Corps of trained collectors, microtomists, draughtsmen, photographers, lithographers, etc., indispensable to the prosecution of biological studies, should be accessible to the investigator. Boats of various kinds, collecting and dredging apparatus, must be at hand. All of this, and much more is necessary to make a biological observatory which shall be to biology what the great observatories are to astronomy. The prosecution of these plans demands an immense sum of money, most of which must, of necessity, be supplied by individual endowment; but with the recent examples of munificent endowments for educational purposes before us, it does not seem altogether a barren hope to look forward to the day when the needs of this great laboratory will be met by private contributions. The realization of these stupendous plans of PROFESSOR WHITMAN and his associates, will give to our country the grandest facilities for biological research the world affords. This is the opinion of such men as HUXLEY, VOGT, DOHRN, HAECKEL, LANKASTER, WEISMANN, LEUKART, GEGENBAUR, and other leading scientists, who write commending the enterprise. The article of PROFESSOR WHITMAN, together with the letters of the biological leaders above noted, must arouse the enthusiasm of every cultured mind.

This noble undertaking appeals to the scientific physician with peculiar force, for the educated physician of to-day is a true biologist. The problems of life and disease as they present themselves in his daily work, impress upon the thoughtful medical man

the great need of a wide knowledge of structure and of function as presented by the whole organic world, as a key to the numerous problems which confront him. The opportunities of the marine biological observatory in comparative physiological research are clearly recognized by its founders and most strongly set forth in the excellent letter of CARL VOGT to PROFESSOR WHITMAN. What can interest a thoughtful physician more than a laboratory in which the problems of life are to be solved by an extensive series of physiological researches on entirely new lines? And does it not seem that this work must be but the initiatory step to a study of *disease* in the same direction? If this be true, then *comparative pathology* will develop into a most productive and important branch of investigation in this great center of research.

Even as it now stands, the Marine Biological Laboratory calls for the hearty support of the medical profession of this country. The necessity of biological study preliminary to medicine is generally recognized, even to the extent of providing pure biological instruction in medical colleges, to supply the deficiency of students not previously trained. This then, must bring the leading medical schools and the biological schools in close harmony, and it must bring these medical colleges in a line with the Harvard Medical School, in entering into coöperation with the biological observatory. With the facilities of an institution of this kind at hand, what an opportunity for the advanced student of medicine, the medical teacher, and the medical investigators! The effects of the coöperation of medical schools with the biological station would, in itself, have a most salutary effect in medical education. Let us hope that the eloquent plea of PROFESSOR WHITMAN may be full of suggestions to the physicians of this country, and that they will unite in this commendable effort to advance biological science. Let the medical colleges and medical societies of this Nation show their appreciation of this wonderful project, so full of scientific promise, by securing a direct union with the observatory.

PROFESSIONAL UNITY.

The trend of thought in this, the last, decade of the nineteenth century is in the direction of association and combine in order to the attainment of supreme results. These combines pertain to capital, which finds its most profitable use and power in corporations, trusts, systems and consolidations. Labor of all classes recognizes its imbecility in individuality of action, and strength to accomplish given purposes by means of aggregating in the form of associations and unions.

The great charity organizations of the cities are

now sustained through associations, and do not depend upon individual philanthropy.

The establishment of educational institutions on the sole basis of a high sounding name, does not meet with popular commendation, and among those that have an existence there is found a sentiment looking towards a combine with others in order to the creation of a greater than either. Financial and intellectual economy are the prime motors in all these movements. In religious circles, churches and denominations, revise their peculiar distinctive creeds, in order to afford opportunities to do the greatest good to the greatest number, and to increase their adherents. The Bible has been revised from the first to the very last chapter in order to meet the demands of crucial scholarship.

New medical societies when found necessary to meet the wants of the medical profession are organized with brief but liberal constitutions. This liberality consists not so much in the explicit conditions that are required of those who are to become members, as of the elimination of conditions.

In the neighboring city of Cincinnati, in all of its history there has existed a conservative, high-toned medical professional life; but in keeping with the spirit of the times during the past decades there has been a tendency towards segregation, which was manifested in the establishment of several medical colleges and as many medical societies. Recognizing a greater usefulness that was within their reach, the societies have recently formally united. The first fruits of this union, and which were gathered immediately, was found in the ability to purchase very valuable property, which is easily converted into a building well adapted for all needed society purposes. Singly, neither of the old societies felt able to do this, together the project swam as if used to the new element. This is but the beginning of the beneficence of this local manifestation of unity in the medical profession of Cincinnati.

The whisperings that have been as rustlings among the leaves of the trees, are being voiced in tones that will be heard all along the professional lines of more than the land that is commercially tributary to the Queen city. The articulation of those tones is becoming every week more and more distinct, and we hear with reasonable clearness of the proposition to unite all the regular medical colleges in that city, and thus together form one great medical school, which is to be the Medical Department of the Cincinnati University, which is a local institution of learning that has recently received some very handsome favors, with more in sight and that are sure to materialize within a very few weeks.

The unification of the medical societies will strongly stimulate the colleges to do likewise. In no other city within our knowledge is there such a

fortunate condition of all the diverse elements for the formation of a great medical department of a university as in the city of Cincinnati. There seems to be needed but a single waft of a wizard's wand to complete the unity work that has been so auspiciously begun.

The medical profession in a dozen other American cities is not greatly unlike that of Cincinnati in many of the conditions that pertain, and if the local profession in those cities will, Indian fashion, put their ears to the ground and listen attentatively they will hear a low muttering sound that is every day growing louder and more distinct, telling them that if they would keep up with the procession they must fall into line, about face from the old order, and seek for better things in new and closer relations.

* * * * *

There are those and there always will be some who are wedded to the past and its traditions, who are loth to give up a present with its meagre emoluments for a future with its greatly enlarged and golden glory of surpassing brilliancy, who prefer tallow dips to electric lights, stage coaches and canal packets to vestibule palace cars, who are opposed to a revised version of the Bible, to a revision of the Confession of Faith, the creed and new hymns. So there are well meaning and most exemplary physicians who see visions of calamity and professional anarchy in a revision of the Code of Ethics. These misfortunes are but mists of the imagination. Revision of the Bible and of creeds unsettled no man's faith, nor weakened one of the churches, neither will it destroy or weaken the medical profession to look into the sky and observe the signs of the times. Consolidations, trusts, associations, systems, and unifications strengthen both specific and general purposes. Conditions of purpose apply to the medical profession, in all of its material needs, whether they be of a social, educational or business nature. The medical profession is always conservative, and is sometimes charged with being slow in its movements, but there are visible and tangible evidences that it is catching a full breath of the spirit of progress that pervades the intellectual world in this year of our Lord 1893.

CONFERENCE OF STATE MEDICAL EXAMINING AND LICENSING BOARDS.—The third annual meeting of the Conference of State Medical Examining and Licensing Boards will be held in Milwaukee, Wis., June 7, 1893.

The following subjects will be discussed, and we will be glad to have you notify us of your intention to prepare a paper on some one of them, and take part in the discussion of any or all of them. We will also be glad to have you suggest, in advance of the meeting, other subjects you may think it desirable to discuss.

I. The Evolution of State Medical Examining and Licensing Boards.

Their present and prospective influence in elevating the moral and intellectual tone of the profession.

II. Composition of Boards.

- (a) The desirable number of members.
- (b) The desirable appointing power.
- (c) The advantages and disadvantages of separate boards representing the different schools of practice.

III. Provisions of the Various State Laws.

- (a) Should the possession of a diploma from a recognized medical school be a prerequisite to appearing before a board for examination?
- (b) What reciprocal relations should exist between boards?
- (c) Should teachers in medical schools be eligible to membership on State examining boards?
- (d) Defects in existing laws, the best law in vogue, the ideal law.

IV. Methods of Conducting Examinations.

- (a) How should the examination be prepared?
- (b) The scope of examinations.
- (c) The minimum and maximum requirements.

JOHN H. RAUCH, M.D., President.

HUGH M. TAYLOR, M.D., Sec'y and Treas.

DOMESTIC CORRESPONDENCE.

Revision of the Code of Ethics.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Dear Sir:—While the question of the revision of the Code of Ethics is under discussion, and before the meeting of the Association in June, I should like, with your permission, to say a few words in relation to the proposition. Most of those who have written on this subject were, as we would express it in California, "forty-niners." They were in at the christening of the child, and what more natural than that they, as godfathers, should remain true to the trust assumed.

If we examine this document critically, one of the best things that we can say of the larger part of it is that it consists of an extensive verbiage which, to say the least, is harmless. In fact, this is the best that can be said of the greater portion of it. No one will question the honest intentions of its authors. But if such minute instructions were necessary fifty years ago to guide the profession and the public (?), that necessity certainly does not exist to-day. The Code is largely a dead letter, and only a short remove from obsolescence. A large percentage of the profession have never read it, and very few are familiar with its contents. Much of its statement seems puerile from the standpoint of to-day. Turn, if the readers please, to Article I and read it carefully. Note the minute directions in regard to the duties of physician to patient. While it is a fact that every intelligent and honorable physician conducts his business toward his patients, instinctively or in self-interest, on the principles there laid down, what is the necessity of telling him or commanding him to follow a course which he would naturally follow if there never had been a code of ethics heard of?

Let us read the first sentence of the Code of Ethics:—"A physician should not only be ever ready to obey the calls of the sick, but his mind ought also to be imbued with the greatness of his mission, and the responsibility he habitually incurs in its discharge." And further on: "Physicians should, therefore, minister to the sick with due impressions of the importance of their office; reflecting that the ease, the health, and the lives of those committed to their charge depend on their skill, attention and fidelity." What important statements these are! Would not the physicians of the United States have been a benighted set, and their

patients have suffered untold and unnecessary miseries, if the sages of the profession, in their wisdom, had not penned these immortal sentences? Benighted Europe still struggles along under the old régime, with no sages to point out the better way. It is strange that the worshipers at the shrine of the Code have never done any missionary work in foreign lands. But go through the whole Article on "Duties of physicians to patients," and it has the same importance as the sentences quoted. But when it comes to informing patients and the public (who do not know that there is a Code of Ethics) of their duties to the physician and the profession, the climax and profundity of wisdom is reached! As I said in the beginning, these portions of the Code are entirely harmless, save in the waste of paper which is incurred from time to time in reprinting them. And possibly they may have a value as relics.

The Article, "Duties for the support of professional character," is mostly useless verbiage, yet some of its sections contain points about which much discussion has taken place, and contain mandates which have been violated in greater or less degree from the day the Code was written to the present, and this, too, by the leading more than by the lesser lights in the profession.

Section 4 reads: "It is derogatory to the dignity of the profession to resort to public advertisements, or private cards, or handbills, inviting the attention of individuals affected with particular diseases; publicly offering advice and medicine to the poor gratis, or promising radical cures; or to publish cases and operations in the daily prints; to invite laymen to be present at operations, etc."

Most of the practices mentioned in this section are reprehensible. But a part of this section has been used from its earliest adoption down to almost the present to prevent or suppress the practice of specialties in our profession. At the time the Code was written specialties were hardly known, and it was supposed that the physician could spread himself over the whole field of medical science. But things have changed since then, and now specialties are the order of the day, yet that portion of the Code remains which says that a man may not, by advertisement in newspaper or private card, call attention to the fact that he treats a special class of diseases. This is violated by thousands of respectable specialists in the United States every day, and nothing is said about it by County, State or National societies. Therefore, is not this part of the Code a dead letter? Why should it remain a part thereof? When the great sages and conservators of wisdom were hard pressed on this subject, they whipped the old nick around the stump by a false interpretation of the letter and spirit of the Code. A man may say that he "limits his practice to certain diseases," but not that the "treatment of certain diseases constitutes his specialty." Tweedle dum, tweedle dee! what a distinction without any difference!

And the Code does not justify any interpretation whatever. Amend the Code in this particular, if we are to have one. Specialists the country over ignore it absolutely.

What about the clause in regard to "offering, publicly, advice and medicine to the poor, gratis?" Is this a dead letter or a living issue? I think it is both. It is a dead letter in that it is ignored, but it ought to be a living issue in that it should be enforced. Who to-day are offering medicines and services gratis to, not only the poor, but to all who will come, and thereby wronging the profession at large out of thousands and millions of dollars annually?—the dispensaries, medical colleges and hospitals of our large cities and medical centers.

Who is it that permits mention of cases in public prints, and unconsciously (?) allows the wily reporter to hold a long interview, which, quite inadvertently, is permitted to

get into print also? Some of the leading lights in the profession are not guiltless in these matters.

Section 4, then, contains some wholesome suggestions, but the portion regarding specialties should be wiped out, and, if deemed best, something in accordance with the spirit of the times substituted.

Section 5 of the article under consideration contains the following language: "Equally derogatory to professional character is it for a physician to hold a patent for any surgical instrument or medicine; or to dispense a secret nostrum, whether it be the composition or exclusive property of himself or others." This whole section ought to be expunged from the Code for the reasons, first, that it contains an unjust, illiberal and un-American edict, in disparagement of the inventive genius of the members of the medical and surgical professions; and secondly, in that it is impossible to know when a man is dispensing a remedy or combination of remedies for some peculiar phase of disease, and has not seen fit to communicate the facts to the profession.

Why should not physicians and surgeons be encouraged to bring out their best inventive efforts to devise better instruments and appliances wherewith to treat the afflicted? Why should they not be remunerated for their genius when they give to the less inventive members of the profession valuable instruments and appliances?

The profession simply stultifies itself in this matter. Physician after physician do hold patents for such things, and if they are turned out of medical societies, I have not heard of it. But if physicians are turned out of societies for patenting an instrument, this is only further evidence of the duplicity and insincerity of the champions of the Code; for is it not a fact that the larger part of the instruments and appliances we use are patented? Does any surgeon deprive his patient the benefit to be derived from using a valuable instrument because it is patented? Of course not. Then all admit that it is proper and legitimate to use a patented instrument, provided it was invented by some one outside the profession? Certainly you do.

Therefore see the ridiculous attitude in which the profession is placed by the great patent regulator, the Code of Ethics. (No pun.) Whose surgical chair do you use? Whose surgical pump? Whose batteries? Whose spray apparatus? Whose surgical splints? Whose rubber goods? Whose thermometers? Whose uterine dilators, etc., etc., *ad infinitum*? Are these not all patented? If one secretes or uses stolen goods not knowing them to have been stolen is it not about the same as stealing? Therefore, in order to seem rational and consistent strike out that clause of the Code relating to patents.

As to the administration of secret remedies, the profession to-day has almost given itself over to the administration of compounds about which they know or can know but little. The pharmaceutical houses have taken the profession under tuition and propose to tell them henceforth what to do and how to do it. They have their ready made compounds for all the ills of humanity, labeled, and full directions, concocted in their dark laboratories according to a secret method peculiar to each establishment. And I will venture to intimate that those "holdovers" from the carboniferous period and other sticklers for the sanctity of the Code, are drenching their patients with these secret proprietary medicines as freely as the more profane among the profession.

So let the patent section of the Code be placed in the museum as a relic of what might have been.

There are many other points in the Code that would be interesting to consider, but I have touched upon the two most important sections, unless some would consider the

one on consultations more important. For my part I have not thought so.

It is a legitimate question at this point to ask, shall we have a Code? I would say yes. We need a rule, adjusted to common sense and the times in which we live, regulating the matter of advertising. Specialists in the full sense of the word should have the privilege of stating in a respectable manner that they are such. Any physician should have the privilege of stating that he devotes special attention to the treatment of a certain class of ailments. Quackery in advertising should be defined and condemned in the strongest terms, and in this particular some of the language of the old Code is quite pertinent.

We should have a standard regulating the matter of consultations—a standard defining clearly the altitude the attending and consulting physician bear to each other; and one which particularly defends the physician in charge.

I am inclined to think that that section of the old Code bearing on this point meets the case. If I should offer any criticism it would be that it is a little too prolix, as some may think the present writer is. Into the controversy concerning whom one may consult with, I do not wish to project myself very far. As to the treatment of disease there can be no consultation between regulars and homeopaths as such matters are pre-judged. In matters of surgery, consultations might seem more consistent, as I believe there is no homœopathic surgery. But whether it is dignified for scientific surgeons to affiliate with the pretenders is quite another question; certainly the lines should not be drawn closely in any emergency cases. Broad humanitarian principles should govern in matters like these.

Give us an amended Code brought down to the requirements of the day in which we live. The extremely redundant and useless but harmless verbiage of the old Code might be retained, but it would look and be more like a nineteenth century document if these parts were expunged and the thing boiled down to the essentials.

Most respectfully,

A. C. SIMONSON, M.D.

San Jose, Cal.

TO THE EDITOR OF THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Dear Sir.—I have noticed several communications in THE JOURNAL on this subject. I see nothing in the demand for revision, save a down-grade movement, on the part of a few in a single State. These few are dissatisfied, and fail to give even a sensible excuse for being so. They do not give one reasonable objection to the present time honored and perfect Code. We have no objection to the Code ourselves, and intend to keep it in spirit and letter. If it does not suit others we pity their depravity, and hope they will leave us alone, and "roost" with their own kind. I concur in all, a conservative member has said in THE JOURNAL of Feb. 11, 1893, and in doing so am not alone in Kentucky, but voice a sentiment of a large number of members from this State.

A KENTUCKY MEMBER.

MISCELLANY.

A BOARD of officers will be convened at Washington, D. C., June 26, 1893, for the purpose of examining applicants for admission to the grade of Assistant Surgeon in the U. S. Marine-Hospital Service.

Candidates must be between twenty-one and thirty years of age, graduates of a respectable medical college, and must furnish testimonials from at least two responsible persons, as to character.

For further information, or for invitation to appear for

examination, address the Supervising Surgeon-General U. S. Marine-Hospital Service, Washington, D. C.

MANIFESTO OF THE SECTION ON OTOTOLOGY, PAN-AMERICAN MEDICAL CONGRESS.—*Honorary Presidents*:—Drs. Adolph Alt, St. Louis, Mo.; Albert H. Buck, New York; Gorham Bacon, New York; Wm. Cheatham, Louisville, Ky.; Francisco de P. Chacón, City of Mexico; Sebastian Cuervoy Serrano, Sancti Spiritu, Cuba; J. C. Connel, Toronto, Canada; Stephen Dodge, Halifax, Nova Scotia; J. B. Eaton, Portland, Ore.; A. A. Foucher, Montreal; John F. Fulton, St. Paul; J. Wilford Good, Winnipeg, Manitoba; Francis P. Loring, Washington, D. C.; Henry D. Noyes, New York; Arturo Costa Pruneda, Santiago, Chili; Charles Inslee Pardee, New York; G. Sterling Ryerson, Toronto, Canada; D. B. St. John Roosa, New York; W. H. Sanders, Mobile, Ala.; Belisario Sosa, Lima, Peru; G. C. Savage, Nashville, Tenn.; J. J. Vermyne, New Bedford, Mass.

Executive President:—Dr. C. M. Hobby, Iowa City, Iowa.

Secretaries:—Drs. Max Thorner, (English speaking), Cincinnati, O.; H. McHatton, (Spanish speaking), Macon, Ga.; Fernando Prez, Buenos Ayres, Argentine Republic; Ernesto Mazze, La Paz, Bolivia; Theodoro Peckolt, Rio de Janeiro, U. S. of Brazil; J. H. Wishart, Toronto, Canada; Carlos Desvernine, Havana, Cuba; Carlos Esquerria, Bogota, Republic of Columbia; Demetrio Orantes, Guatemala City, Guatemala; H. G. McGrew, Honolulu, Hawaii; Antonio Peuañel, City of Mexico, Mexico; Dr. Montengro, Leon, Nicaragua; N. Surh, Montevideo, Uruguay; Focion F. Cordero, Merida, Venezuela.

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The Section of Otology has been rendered necessary by the fact, that while the treatment of diseases of the ear has in the past been mainly in the hands of ophthalmologists, the recent advances in the study of diseases of the nose and pharynx has necessarily divided the practical work of treatment of the diseases of the ear; so that at present we find these diseases considered by both ophthalmic and rhinologic surgeons. It is hoped that in this Section surgeons of both classes may meet, and to this end the effort will be made to secure hours not conflicting with either of the other Sections.

Communications in reference to papers should be addressed to the English speaking secretary, Dr. Max Thorner, 141 Garfield Place, Cincinnati, O., suggestions as to work and exhibition of instruments to the executive president, Dr. C. M. Hobby, Iowa City, Iowa.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from April 8, 1893, to April 14, 1893.

First Lieut. Charles F. Mason, Asst. Surgeon U. S. A., will proceed to New York City, on Monday, April 14, 1893, and report in person to Col. Charles H. Alden, Asst. Surgeon-General, President of the Army Medical Board in that city, for examination by the Board, with a view of determining his fitness for promotion.

Capt. Daniel M. Appel, Asst. Surgeon U. S. A., will be relieved from duty at Ft. Bliss, Tex., as soon as possible after the receipt of this order, and will then proceed to Chicago, Ill., and report in person to the commanding General, Dept. of the Missouri, for assignment to duty pertaining to the World's Columbian Exposition, as attending surgeon for the officers and enlisted men on duty in the Exposition grounds.

Major Edward B. Moseley, Surgeon U. S. A., will be relieved from duty in the office of the Surgeon-General of the Army, not later than May 1, 1893, and will report in person to the commanding officer, Ft. Monroe, Va., for duty at that post, to relieve Capt. Adrian S. Polhemus, Asst. Surgeon.

OFFICIAL LIST OF CHANGES in the Medical Corps of the U. S. Navy, for the Week Ending April 15, 1893.

Surgeon C. G. Herndon, detached from the Marine Rendezvous, New York, April 12, and placed on waiting orders. Surgeon N. H. Drake, ordered to the Marine Rendezvous, New York.

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No. 17.

ORIGINAL ARTICLES

TWO CASES OF LITHÆMIC VERTIGO; WITH REMARKS ON THE TREATMENT OF THE GOUTY STATE.

Clinical lecture delivered

BY FRANK WOODBURY, M.D.,

PROFESSOR OF CLINICAL MEDICINE IN THE MEDICO-CHIRURGICAL
COLLEGE; FORMERLY ATTENDING PHYSICIAN TO THE GERMAN
HOSPITAL OF PHILADELPHIA, ETC., ETC.

Gentlemen:—I will now call your attention to two cases, each suffering with vertigo to a marked degree. They also present other symptoms, which they consider of minor importance, but which taken as a pathological group are sufficient to clearly stamp their morbid identity. Upon careful investigation, however, it will be found that the immediate cause of the vertigo in these patients is not precisely the same. In fact, it may be found that such points of difference will be developed by our examination as to influence not alone the treatment, but also the prognosis. To the consideration of this, however, we will return after reading a brief summary of the symptoms and clinical history. The notes of the first case will now engage our attention.

Mrs. A., a widow, born in Ireland, is about fifty-two years of age; her general health and nutrition are good, in fact she inclined to obesity. She can give us no details of family history; but thinks that her father suffered with gravel. She had always been well until some six years ago, when she lost her husband and children. Since that time she has lived alone; but looks as if she were well cared for. She at first frequently suffered with headache, and within the period named has had two attacks of gravel. For the last three or four months she has experienced a very annoying vertigo, which she now has every day. It comes on while eating breakfast, or shortly afterwards, and lasts all day, more or less, being sometimes hardly noticeable and at other times she is obliged to sit down until the dizziness has passed off. It is made worse by fright or emotion; it is not affected apparently by food or the state of the digestion. Her appetite is not very good at present; the bowels are not constipated. She no longer has headaches and has not had an attack of gravel for several years, but she frequently notices a heavy, red sand deposited in the vessel by her urine after standing. Cessation of menses occurred five years ago, and she is inclined to attribute all her troubles to the change of life as women are very apt to do. Proceeding to an examination of the patient, we observe that her physical powers and mental functions are unusually good. Her digestion is fair, according to her own account, but we find her tongue slightly covered with a white deposit especially towards the back; it is pale and slightly swelled; she sometimes

has flatulence. Bowels are moved daily. The urine is rather less than it should be. The specimen which she brings with her is of an amber color, slightly acid in reaction, of specific gravity 1020, and is free from albumen and sugar. In this specimen there is no evident precipitate, or brick-dust deposit; and the relative amounts of urea and of uric acid have not as yet been determined. No abnormalities have been found in connection with the heart, nor is there evidence of increased arterial tension or of thickening of the vessel walls in the radial arteries. The pulse is seventy-eight to the minute. Her finger joints, especially the distal ones, are prominent and are somewhat tender upon pressure. The pinnae of the ears are both thickened, but no chalky nodules are to be seen. The ring finger of her right hand is drawn downwards towards the palm of the hand. This, which is known as Dupuytren's contracture, is rare in women; it has been found to be due to shortening of the palmar fascia which sends prolongations to the fingers, the flexor tendons are not implicated. It is, in a high degree, a hereditary affection coming on in adult age or after middle life.

In this patient, the attacks of gravel and persistence of deposit of urates in the voided urine; the frequent attacks of vertigo preceded by headache or migraine, the deformity of the finger-joints and in the lobes of the ears, all combine to mark the case as clearly one of irregular gout. It is interesting in this connection to note that the contracture of the finger also has been claimed to be of gouty origin by Adams. I should state that she denied that she has ever had anything like an attack of typical gout either in hands or feet. The character of the vertigo in this patient is objective—she says that the "room seems going round." It is relieved by closing the eyes and by sitting or lying down. It is unaccompanied by ear-symptoms, sick stomach or nausea. It was preceded and seems to have taken the place of migraine, which no longer occurs. It has not affected her mental faculties. We will now turn to the second patient, whose history is briefly as follows:

Mrs. B., also a widow living in comfortable circumstances, is spare instead of stout. She carries her age remarkably well; since she tells us that she was born in 1812, and is therefore now in her eighty-second year. She walks about unattended, has all her intellectual and bodily faculties fairly well preserved. She has lost her teeth but has an artificial upper and lower set which she uses very well. Fifteen years ago she had a double operation for cataract; and has now good vision. Her hearing is good; but we find that it is less acute in the right ear than in the left. Digestion good, bowels regular, urine examination negative (slightly acid, specific gravity 1017, no albumen or sugar). She passes water frequently, rising twice or thrice during the night, but the total quantity in the twenty-four hours is not ex-

cessive. She complains bitterly of dizziness and noises in the ears "like grasshoppers." Examination of the ears by Dr. Behrens reveals senile thickening and retraction of membranes; but no impaction of cerumen or other local cause for the tinnitus. The first sound of the heart is somewhat impaired (murmurish), the second sound at the base accentuated, but there are no murmurs indicative of valve lesions. The radial arteries are large and their walls sensibly thickened; the pulse is moderately slow and lacking in tension, occasionally intermittent. She states that she had good health until she had the grippe three years ago; and has never been so well since as she was previously. She has had vertigo since last Christmas, and she thinks it is getting worse. She never was troubled much with headaches and certainly has had none lately. She states that the vertigo is always absent at night and when she is lying down; but comes on while she is dressing herself for breakfast and lasts all day. On some days it is worse than on others. It is made worse by unusual exertion or fatigue. She has not fallen as a result of dizziness but feels as if she might, as "her head swims so." The vertigo is principally subjective. Some nineteen years ago she had a spell of unconsciousness while on her way down stairs to get breakfast, and without any warning fell on the landing, but soon regained consciousness and went on with the day's work. From this no ill results followed, and the attack was never repeated. It was probably an attack of syncope, but might have been the result of an embolus in a non-motor portion of the brain. A few negative notes be added. There is no palsy and no skin eruption, no cedema, no tremor. Intellection not impaired; memory not appreciably affected. No digestive disorder. She has not had any of the ordinary manifestations of gout, and there is no evidence of renal disease, at present at least. Her family history is unknown.

REMARKS.

It would be stretching a point to call this, in the absence of the usual evidence, a gouty patient, and yet her physiognomy strongly impresses me with the view that she descends from gouty ancestors. It is, however, a matter of little consequence whether senility or gout, is responsible for the atheroma of the arteries which we find to be present, and which in all probability is the cause of the cerebral disorder. If she were forty instead of over eighty, the diagnosis would undoubtedly be gouty disease of the blood vessels; as it is, however, her age is a sufficient explanation. It is strange that greater deterioration of the intellectual faculties has not yet occurred, but this will be a natural sequence owing to the influence of diminished blood supply to the hemispheres from the loss of resiliency in the coats of the arteries, combined with the tendency to cerebral atrophy usual in old age.

The tinnitus aurium and vertigo are suggestive of Ménière's disease, from which this case differs in several important particulars. In Ménière's disease, the tinnitus is usually limited to one side of the head, and the patient tends to fall if standing, or, if walking, goes in the arc of a circle, towards the unaffected side. The symptoms are comparatively rapid in their onset and progress, the loss of hearing is marked, and is worse in each attack until complete deafness supervenes, when the vertigo ceases. The

seizure is often accompanied by vomiting, which may continue for some time. The patient after such an attack may be entirely free from dizziness until another seizure is experienced, and may be permanently relieved if the aural disorder can be removed by treatment. The present case has therefore only a superficial analogy to a case of Ménière's disease.

The chief feature of interest in the second patient is her advanced age with so few evidences of senility as she presents. With care she may yet enjoy several years of life. The vertigo is functional and in both cases is merely a symptom of an underlying condition of the blood vessels, which is often caused by lithæmia; it is certainly aggravated and its course made more rapid by an excess of urates in the blood. As regards treatment, therefore, in each case, it should be directed towards correcting a tendency to the gouty state and as far as possible to obviate the effects and prevent future manifestations. As regards diagnosis, it may be as well to state that vertigo is fully recognized as a symptom of irregular gout by Trousseau, DaCosta, Loomis and others, although some recent systematic writers do not mention it. It may be due either to the direct action of the blood carrying the gout-poison directly to the cerebral cortical centres, or to the indirect effect upon nutrition from the atheromatous and calcareous changes of the cerebral blood-vessels, which interfere with the circulation of the blood and its distribution to the great nerve centres. Considering these cases as illustrating the two conditions mentioned, the treatment will be modified by this fact. In each the usual advice is given as to hygienic and temperate living though this advice is not required in its usual sense, for neither is addicted to the use of stimulants. Gouty patients should pay especial attention to the condition of the skin, and should avoid such exposure as would lead to chilling the surface and producing internal congestions. Great care should also be taken to keep the stomach in a normal condition avoiding excess of eating or drinking, and all articles which are known to fermentation and flatulence. Occasional cholagogue purges are useful, especially with colchicum preparations, but too frequent purgation is debilitating, and should therefore be avoided. The kidney secretion must be watched and the appearance of a brick dust deposit should be regarded as a cautionary signal, to indicate either a deficiency of oxygen, hepatic failure, or errors of diet, or all combined. The occurrence of albuminuria should lead to the institution of proper measures to prevent the developments of renal congestion, or degeneration (gouty kidney).

Among the most important means of treating the gouty state is the persistent use of a good natural lithia water, which may be used at the table and at other times. As pointed out by Sir Henry Thompson, the artificial mineral waters or solutions of salts are less efficient therapeutically than waters from Nature's laboratory. Many mineral waters are offered to the public for lithæmic conditions, whose only therapeutic value resides in the water which they contain. Trousseau indeed cautions against an excess of water drinking by gouty subjects as being injurious and likely to intensify the symptoms. This is more likely to occur where the kidneys have been structurally altered by the disease, and therefore have their functional activity more or less reduced. Lithia on chemical grounds is considered

the most useful of the alkali remedies, because it forms more soluble salts with uric acid than any other base. It is not clear, however, why uric acid should combine with the lithia salts in the presence of sodium carbonates in the blood, when as a rule the base which forms the insoluble salt is considered to have a stronger affinity for an acid than one which combines with it and remains in solution. I mention this because I am not willing to concede all the good results from such a water, for instance as the well known Buffalo Lithia Water, to the presence of the lithia, any more than I would be to ascribe it entirely to the pure water which it contains. The fact is that experience has abundantly shown that the good effects of the natural lithia water are to be ascribed to the peculiar combination of salts, just as in drug prescribing we obtain special effects by combining our remedies. It is gratifying to witness the good effects of the daily use of four or five glasses of the Buffalo Lithia Water in relieving the usual symptoms of lithæmia, or even in removing the more severe condition of gravel or uric acid deposits. At the same time, I do not wish to be misunderstood. I think that at the present day there is danger of our taking too narrow a view of the pathology of gout, and to sum it up as simply uricæmia or lithæmia (lithiasis of Fothergill), or an increased amount of uric acid in the system. This is an unfortunate error. Uric acid is not the cause of gout; *it is the gout, on the contrary, which causes the excess of uric acid.* In other words, the gouty diathesis or condition is that in which there is a tendency to increased formation of uric acid, and also of oxalates, and it is accompanied by other well-marked pathological occurrences which complete the clinical picture. In several other disorders we have as great or even greater development of uric acid in the blood without the typical and classical tissue changes of podagra, and in gout the amount of uric acid is not the sole measure of the intensity of the gouty manifestations. The nervous phenomena of gout must not be overlooked, and the fact that heredity plays such an important part in its production, and its well recognized diathetic character, give much support to the view of the essentially nervous character of the disease.

Sir William Roberts has, in a recent lecture, shown that in gouty subjects the uric acid exists in the blood in the form of the soluble quadrates while in gouty patients it exists in the less soluble form of bi-urates; the sodium bi-urate being particularly insoluble. Where this sodium bi-urate is in process of deposition in the form of tophi in the parenchyma of organs like the kidneys, in the articular surfaces of joints, and around them; and in the pinnae of the ears, it is conceivable that a remedy like piperazine which exercises an extraordinary solvent effect upon the urates, might be useful for a rapid effect. But a rational treatment would be to shut off the supplies of soda and to diminish its total quantity in the blood. Acting upon this, Dr. Roberts has for years been in the habit of advising his gouty patients to restrict the use of salt with their meals, especially since table salt or sodium chloride in solution has the power to precipitate sodium bi-urate and increase the deposits in the joints. It is worth noting that butcher's meat contains considerable proportion of the chloride of sodium, while salt or pickled meat, or fish, is especi-

ally objectionable. Jonathan Hutchinson limits the amount of fresh fruits to be eaten by gouty patients, and especially of acid fruits, which are usually eaten with sugar. Some vegetables contain a decided portion of sodium salts, notably white potatoes. While on the subject of diet I might say that recent authorities upon the treatment of irregular gout—and I refer especially to a recent lecture by Prof. Da Costa—limit the quantity of sugars and starches (carbohydrates) in the food, chiefly on account of the tendency to the occurrence of acetous fermentation in the stomach in gouty patients. The former interdiction of nitrogen-containing foods is now removed, at least sufficiently to permit a varied dietary; one that is adapted to the digestive capacity, and to keeping up the forces of the economy. An excess of albumen, however, is to be carefully avoided so as not to throw too much work upon the kidneys. In patient number one, the general dietetic treatment just indicated will be followed, with the cholagogue laxative given at night twice a week, and the lithia water, if she can provide herself with it. She shall keep her stomach in good condition by avoiding pastry and sweets, and the use of tea or coffee which retard digestion and interfere with elimination of waste. Daily exercise of an hour or more each morning is an important part of her treatment. The second patient requires a cardiac tonic to increase the amount of blood sent to the cerebral arteries, and supplies of nourishment at short intervals in order to improve the quality and increase the total quantity of the blood. To improve her digestive function she shall have tincture of nux vomica, five minims, tincture of cardamom comp. twenty minims, tincture of gentian, enough to make one drachm, which is to be taken in hot water half hour before meals. She shall also take tincture of strophanthus five minims three times a day, which shall be gradually increased until its effects are evident upon the pulse. In advanced age the hygienic management is often of more importance than the medicinal treatment. If the blood tension becomes abnormally increased under the strophanthus, we will temporarily resort to nitro-glycerin. (Case No. 2 returned a week later with improvement in strength and volume of pulse, and with rather less vertigo and tinnitus).

PNEUMONIC FEVER—ITS SYMPTOMATOLOGY.

BY EDWARD F. WELLS, M.D.

OF CHICAGO.

RESPIRATION.

During the stage of invasion there is experienced by the patient a sense of oppression of the chest, with some difficulty of breathing and an acceleration of the respiratory movements. As the disease progresses and exudation takes place the number of respirations per minute are still further, sometimes greatly, increased; and they are short, quick, anxious and difficult.

In my series of cases the number of respirations per minute ranged from eighteen to 100. In 33 per cent. they ranged between twenty and thirty. In 41 per cent. from thirty to forty. In 19 per cent. from forty to fifty. In 16 per cent. they ranged from fifty to sixty. In eight cases from sixty to seventy. In five cases eighty was reached. In one case they numbered ninety, and in two cases 100 was attained. As might be supposed, the greatest frequency was noticed

in children. Very great frequency in adults was generally an unfavorable or fatal symptom.

Andral¹ says that the respirations usually rise to from thirty-two to thirty-eight. In adults if they attain fifty the case is almost invariably fatal, but in children they may rise to sixty, or even eighty per minute. Bouilland² found the average number of respirations in twenty-six cases to have been thirty-two per minute, and after recovery sixteen per minute. Chomel³ found the respirations in his cases to range from thirty to forty, and sometimes up to sixty per minute. Fox⁴ says that the number of respirations per minute is seldom less than thirty, is often thirty-five to forty, and may even reach to sixty or seventy. Gerhard⁵ says that they are usually from forty to fifty, and may be fifty or sixty per minute. Green⁶ gives the number as from thirty to forty in adults, and up to seventy in children. Huss⁷ found the respirations number from twenty-two to sixty per minute in successful cases and seventy to eighty in fatal cases. Juergensen⁸ states that he has never known the respirations number more than fifty per minute in uncomplicated cases except where the patient was moribund. Sweet⁹ says they usually number about thirty per minute, but they may rise to forty or sixty. Ziemssen¹⁰ found, in children, that under five years of age the average number of respirations was from fifty to sixty—sometimes rising to eighty—and over five years forty, and often sixty per minute. Loomis¹¹ says they are not unfrequently over sixty per minute.

The lowest number of respirations met with by me was eighteen per minute, in the case of an adult who, in health, breathed fifteen times per minute. Little acceleration of the breathing is a peculiarity of certain epidemics¹² and forms of the malady. A very slow respiration rate may be due to an accompanying cerebral lesion, *e. g.*, inflammation with effusion.¹³ In the case of persons who habitually use alcohol to excess the breathing is often not much accelerated. This is also true of some cases of senile, intercurrent or latent forms of the disease.¹⁴

In the ordinary form of the malady Grisolle¹⁵ saw a case in which the respirations did not exceed twenty per minute, and Raven¹⁶ one in which the rate did not go beyond seventeen.

Sometimes the frequency of the respirations is almost incredible—even exceeding the pulse in number. This is especially noticeable in young children.

Bazinsky¹⁷ has observed a respiration rate of ninety-two with recovery of the patient. Bednar¹⁸ has seen the respirations as frequent as 107 per minute. Chomel¹⁹ has met with a rate of ninety-two in a successful case. Gibbon²⁰ records a recovered case in which the respirations reached sixty per minute. In another case, fatal, they numbered seventy. Both were adults. Grisolle²¹ observed seventy-five to eighty per minute in a case which recovered. Parkes²² saw a case, with both lungs involved, in which they numbered seventy-eight per minute. The patient, an adult, recovered. Sturges²³ reports the case of an adult, with an assemblage of very grave symptoms, with a respiration rate of 100, yet recovery ensued.²⁴ There is reported in the U. S. Marine-Hospital Reports²⁵ the case of an adult whose respirations numbered ninety-five per minute. The patient died. Lee²⁶ reports the case of an adult in whom the respirations ranged between seventy and 100 per minute for several days, with recovery. Wittich²⁷ has seen the respiration rate as high as seventy per minute in adults, and ninety in children. Lebert²⁸ has noticed sixty-eight respirations per minute in successful cases. Satterthwaite²⁹ has not seen the respirations more frequent than sixty-four per minute.

The frequency of the respirations is a very good index of the amount of danger present. In the case of an adult the patient is in danger when the respirations ascend to forty per minute, and in great and imminent danger if the number rises to fifty or sixty. Exceptions to this rule are not infrequent.

The acceleration of respiration is due³⁰ to a combination of causes, among which may be mentioned the pain, diminished respiratory capacity, exalted

temperature, irritation of the nervous respiratory centres, etc.

Increasing frequency of the respirations may be the only noticeable symptom of the disease, especially in the aged.³¹

A man, aged twenty-four, ill with typhoid fever, had no symptoms pointing toward thoracic disease except frequent respiration, which was attributed to tympanitis. At the autopsy, in addition to the lesions of enteric fever, the entire right lung, except a small portion at the base, was found in a state of red hepatization.³²

The number of respirations per minute in health varies in the case of different individuals within wide limits,³³ and this fact must be considered when estimating their acceleration. A respiratory rate which in one might be greatly in excess of the normal indicates no increased frequency in another person.

One of the most noticeable facts regarding respiration in pneumonic fever is that from the very first—in advance of any demonstrable local lesion—there is a disproportion between the pulse and respiration rate,³⁴ clearly indicating that the lungs are already bearing the brunt of the disease.³⁵ The more severe and dangerous the attack the more marked is the disproportion.

It has been stated that during convalescence the pulse-respiration ratio may be more perverted than ever,³⁶ owing to the slowing of the pulse at this period, whilst the aerial capacity of the lungs is yet greatly diminished, but this has not been the case in my experience.³⁷

The character of the breathing is very characteristic of the disease and, rarely, may be in itself sufficient for a diagnosis. Indeed if the inspirations are abrupt, short, superficial, repressed or interrupted and are followed immediately by expiration³⁸ in an acute febrile attack, we may rest assured that pneumonic inflammation is present,³⁹ although inappreciable by the stethoscope.⁴⁰

The strikingly peculiar form of breathing known as Cheyne-Stokes respiration is met with in some rare cases of pneumonic fever. It is usually associated with cerebral, cardiac or nephritic disease, although it may exist without such complications. Its presence in this disease is probably purely accidental. It occurred in three of my cases.

Juergensen⁴¹ met with this form of breathing three times in fifty-four cases, all of which were fatal. This high percentage is clearly a mere coincidence.

The phenomena observable in this form of respiration are evidently due to changes in the respiratory nervous centres.⁴² This, and all other forms of anomalous respiration, is an ominous symptom.⁴³

Mosso⁴⁴ claims that Cheyne-Stokes respiration is nothing more than an exaggeration of the normal rhythm, and offers in proof direct experiment. A respirator is placed over the mouth and nose and connected with a delicate gasometer, and this with an apparatus for producing tracings. The tracings show rhythmic variations of respiration as in Cheyne-Stokes breathing, both as to time and quantity of air respired. The instrument may be worn during sleep, yet the objection raised by Hayeroft,⁴⁵ that the experiment is not conducted under normal conditions, must have some force. The resistance of the gasometer naturally tires the respiratory muscles and exhausts the nerve centres.

I have met with a series of cases in which the respiration was very peculiar, although differing from the typical Cheyne-Stokes variety. Two of these are as follows:

A farmer, aged twenty-three, of slight build but of general good health, had felt languid and weary, and had had various fleeting pains throughout the body for several days, when, on Jan. 4, 1881, he was compelled to take to his bed.

The attack was inaugurated by chilly sensations, alternating with flashes of heat, followed in a few hours by dyspnoea, cough, rusty sputa, and pain in the left infra-axillary region. The case pursued a severe, but on the whole an ordinary, course, and I saw him first on the tenth day, in consultation with his regular attendant. At this time the cough was almost incessant, and was accompanied by an abundant prune-juice expectoration. The pulse was 130 and irregular. The skin was harsh and dry, and the temperature 103.5°. The tongue was dry, pointed and tremulous, and the teeth were covered with sordes. There were frequent attacks of epistaxis. He obtained some sleep, had no delirium, and the mind was quite clear. The bowels were confined, abdomen retracted, and urine scanty. The patient lay upon his back, nauseated, with occasional vomiting and complete anorexia. The respirations numbered thirty-five per minute, were very shallow, and were remarkable for a very short inspiration, followed immediately by a greatly prolonged expiration and pause.⁴⁶ The respiratory act, however, was repeated at perfectly regular intervals. Percussion and auscultation revealed consolidation of the upper lobe of the left lung. The patient passed into a low, stupid state, and died four days later.

A boy, aged three, had had a cough for a week; ate freely of nuts in the evening, fell asleep at nine o'clock, and was found in convulsions at five o'clock next morning. At six o'clock, and after the convulsion had subsided, although he was still dazed, his pulse was 120 and respirations 40 per minute, and temperature 102°. There was dullness, diminished respiration, bronchial breathing and an abundance of fine and coarse râles over the entire left lung, and over some parts of the right lung behind. During the forenoon he was irritable, although he played some and sat at the dinner table. At two o'clock he became drowsy, and no answers could be had from him until four o'clock, when he said "no," in declining a drink. At five o'clock he had a second, and at 6.30 o'clock a third convulsion. Immediately upon the subsidence of the last convulsion, and suddenly, like a flash, general pulmonary oedema set in. The breathing became very rapid, with noisy tracheal râles, universally diffused crepitation and moist rônchus. A frothy, mucous fluid, at first clear, but finally tinged with blood, ran in great abundance from the mouth and nose.⁴⁷ The respirations, beginning with a deep, convulsive inspiration, would gradually become feebler, shallower and slower, until they were scarcely perceptible, when there would be again the deep, convulsive inspiration and the series of gradually decreasing respirations. Each series occupied about five minutes, and differed from the classic Cheyne-Stokes variety in there being a sudden, abrupt, instead of a gradual, rise to the highest point of respiratory vigor. The amount of pulmonary oedema and discharge gradually diminished, but the character of the respirations did not improve, and, prostration increasing, he died at midnight.

The movements of the chest walls are usually more or less impaired. The affected side participates but little, sometimes not at all, in the movements necessary to carry on respiration, the muscles of the opposite side and of the abdomen and the diaphragm performing most of the function.⁴⁸ This diminution of movement depends upon two factors—the uselessness of respiratory efforts to inflate an hepatized lung, and the pain caused by the attempt. This diminished expansibility⁴⁹ of the chest may be readily detected by placing the hand over the affected region. In the early stages of the attack the expansion will be suddenly arrested, sometimes with a quivering sensation, a short time before the hand on the opposite side appreciates the greatest dilatation and the completion of inspiration.⁵⁰ This repression of the full inspiratory expansion is due to the acute pain produced by the completed act. The same phenomenon may be noticed in a lesser degree at a later date, when it is due to the obstacle offered by the solidified lung.

During the exudation stage the application of the hand over the affected region will reveal increased intensity of the peculiar vibratile sensation noticeable when the patient speaks, known as the vocal

fremitus. This sign will appear as soon as the hepatization can be recognized by percussion.⁵¹

Increased vocal fremitus is a valuable diagnostic sign, but in palpating for this it must be remembered that its character will vary with the pitch of the voice, the diameter of the larger bronchi and their proximity to the surface, the thickness and character of the thoracic walls and the distance of the hepatized lung from the larynx. It is best estimated by simultaneously and symmetrically examining both sides of the chest. Before practicing for this sign the patient should be directed to cough, in order that the bronchial tubes may be freed from accumulated secretions. The increased vocal fremitus is due to the fact that the vibrations are not lost by being diverted into all the more minute ramifications of the bronchi and the alveoli, but the solidified lung, being an excellent conductor of vibrations, takes them up in the form in which they leave the larynx and conveys them directly to the hand of the observer. Inasmuch as the condition of pulmonary tissue in this disease is more complete than any other, the local vocal fremitus is more distinct than in any other malady. It may be absent in rare cases, due to occlusion of the main bronchus leading to the part.⁵²

In many cases respiration is carried on to a great extent by the diaphragm, resulting in more extensive movements of the abdominal walls than in health. Such respiration is called abdominal. In many of these cases the fixed and motionless condition of the thoracic walls contrasts markedly with the extensive range of movements of the abdominal parietes, and is highly suggestive of pneumonic fever. In case, however, the diaphragmatic pleura is involved in the inflammation it almost entirely ceases to act and the respiration is then strictly thoracic and very much oppressed.⁵⁴

In some cases, women and children especially, whilst the chest wall of the affected side or part remains almost inactive,⁵⁵ other portions have, by way of compensation, an increased range of movement.

Thus Freidleben⁵⁶ says that in the case of children, whilst the upper half of the affected side remains motionless, the lower half from the seventh rib down, has a much greater range of movement than normal. He was of the opinion that this always obtained, regardless of the seat of inflammation, but in this he was clearly in error.

In estimating the range of movements of the chest and abdominal walls during respiration in pneumonic patients, their sex and age should always be considered. Women⁵⁷ and children naturally expand the upper part of the chest more and the lower portion of the chest and abdomen less than do men or the aged of either sex. Thus an amount of infra-clavicular expansion ample for an adult male or an aged female would be below par for a child or an adult female, whilst the converse would obtain for infra-axillary action. The side of the chest corresponding to the arm most in use is normally larger and has a greater range of movement than its opposite. In the case of corpulent persons the respiratory movements are slow, sluggish and impeded and the abdomen is unyielding.⁵⁸

To measure accurately the movements of the thoracic walls is quite a difficult undertaking, from the fact that these walls are very irregular in outline and that the normal and abnormal range of movement varies at each particular spot. Besides, were even these difficulties overcome no account could be taken of the movements of the diaphragm.

Next to the practiced eye and hand the most convenient and reliable method of measuring the range of movement of the thoracic walls is that proposed by Quain.⁵⁹ His instrument consists of a flat case, having a graduated dial and index acted upon by a simple mechanism. A cord of sufficient length passes through an aperture in the case and is connected with the internal mechanism. In using the instrument the dial is placed firmly against the spine and the end of the tape over the sternum. The tension of the string during inspiration is shown by the excursions of the index upon the dial. The same information may be obtained and graphically recorded by the stethographs of Vierordt and Ludwig, Rosenthal, Fick, Gerhard, Marey, May, my own

and others. The principle of all these instruments is the same. An index is acted upon by the movements of the chest and an attached pencil records the range of movement upon a ribbon or plate moved along by clockwork. Such an instrument accurately records the range and rapidity of the respiratory movements.⁶⁰

In pneumonic fever it is found that not only is the range of movements of the chest wall covering the affected portion of lung greatly restricted, but the character and relations of the different parts of the respiratory curve are altered.

Graphic representations of the form of the chest may also be obtained by the use of the cyrtometer.⁶¹

To make mensuration an important and valuable factor in the diagnosis of pneumonic fever the patient must endure much more than is always best for him. He must sit erect, the chest must be bared and much time is required. For these reasons it is employed but little in actual practice.

Whether or no the side of the chest corresponding to the affected lungs is enlarged is a point on which authors differ. The proposition is denied by Rokitsky⁶² and some others, but is acknowledged as a fact by the vast majority of those writers⁶³ who have expressed an opinion upon the subject.⁶⁴ I have made accurate measurements, both during the attack and after recovery, in a considerable number of cases and am convinced that such enlargement does occur. Not only may the enlargement be visible externally but the distended lung may encroach upon the mediastinum so as to slightly displace the heart⁶⁵ and great vessels. The enlargement may be confined to a local bulging, as at the apex or base.

After recovery the affected side, as a whole or in part, may undergo more or less contraction.⁶⁶ due, no doubt, to the contraction of the organized false membranes plastering the pleura. There may be depression of the intercostal spaces.

Duclos⁶⁷ has called attention to a peculiar depression, called by Trousseau the "peripneumonic furrow," to be found at the base of the chest in many cases of pneumonic fever. The depression is most noticeable in those cases in which there is severe pain and a motionless state of the affected side of the chest. It is due to rigid muscular contraction. It is not present in a very large proportion of cases,⁶⁸ yet I have met with it in a few infants. In my cases it has always disappeared after the third or fourth day.⁶⁹

The expired air has an increased temperature,⁷⁰ is saturated with moisture⁷¹ and may have a peculiar⁷² or fœtid⁷³ odor. The amount of carbonic acid excreted is sensibly diminished.⁷⁴ The expired air is almost entirely free from microbes and dust—the respiratory tract acting as a filter.⁷⁵

In pneumonic fever there is almost always a decided oppression at the chest, which, in most cases, amounts to actual dyspnoea.⁷⁶ In rare cases it may be so intense as to produce a sensation impending death by apnoea.⁷⁷

A German, aged fifty-three, was admitted into the hospital after having been ill a week with pneumonic fever. "His breathing was most difficult, it being necessary to keep him in an almost upright position. The temperature was 104°, pulse 149, and respiration forty. He expectorated large quantities of clear frothy mucus. Death occurred on the tenth day. At the autopsy the left lung was found hepatized, with obliteration of the pleural sac. The right pleura was adherent in many places and its cavity contained a pint of serum."⁷⁸

A man, aged twenty-one, nine days ill with pneumonic fever, was unable to lie down or turn in bed. "His countenance was flushed, puffed and anxious; skin hot and dry; respiration sixty in the minute, pulse 120, with great pain in the right side, and incessant short cough, with scanty red expectoration. He expressed great exhaustion, was

restless, dull and indifferent to his situation. His life seemed absorbed in the labor of breathing and coughing." The whole of the right, and a portion of the left lung were consolidated. On the following day the pulse had fallen to 110 and the respiration to forty-six per minute and two days latter convalescence was fully established.⁷⁹

A male child, aged eighteen months, was taken with pneumonic fever, locally affecting the bases of both lungs, April 21, 1880. From the first respiration was short, rapid and oppressed. The dyspnoea gradually increased and on the tenth day it was so intense that the child gasped for breath, grasped the throat and pulled the clothing of the chest, could not lie down and wore a look of intense anxiety and alarm. He did not cry, was insensible to his surroundings and seemed to have only one object in life and that was to get more air into the lungs. These distressing symptoms gradually subsided and convalescence was declared on the fourteenth day.⁸⁰

The dyspnoea was not of the same character and is usually not so severe as that met with in asthma and some other diseases.

Cœlius Aurelianus⁸¹ says that the patient often compares the oppression to the placing of a heavy weight upon the chest, which presses its walls backwards. Many of my patients expressed their sensations by a similar comparison. Many complained of a constriction of the chest as of a tightly drawn girdle.

In children often,⁸² and sometimes in adults, the dyspnoea may be paroxysmal and suffocating, threatening asphyxia. Andral⁸³ noticed that patients often experience a sensation that they do not breathe on one side. This observation I have been able to confirm in a great number of instances. Even in cases with involvement of less than an entire lung, patients have been able to accurately locate the portion of lung impermeable to air; and as resolution advances they often volunteer the truthful information that the local affection is disappearing, because, as they express it, they can "breathe through"—the air entering the formerly closed parts and making the occurrence known to the patient.

Salter⁸⁴ lays down the law that the amount of dyspnoea is not dependent upon the extent of the injury inflicted upon the lung, but upon the possibility of inhaling more air by violent inspiratory efforts. Thus a phthisical patient may not have the use of more than a quarter of his lungs, yet, although his respirations are very frequent, his sense of dyspnoea is but slight. In such an instance it is clear that any amount of inspiratory effort can not compel the destroyed portion of lung to do any work whatever. In pneumonic fever I have found many exceptions to Salter's rule.

The oppression and dyspnoea is due to the presence in the lungs of an increased supply of blood and of inflammatory products, and to a hypersensibility of the pulmonary nerves⁸⁵ and an irritation of the respiratory centres.⁸⁶ The rapidity of respiration and grade of dyspnoea will vary, to a certain extent, with the amount of lung tissue involved, the extent and intensity of the bronchial catarrh, the quantity of pleuritic effusion, the height of the fever⁸⁷ and peculiarities of the prevailing epidemic.⁸⁸

In some cases in which the greater part of the pulmonary tissue of both lungs is affected the encroachment of the dilated capillaries upon the air-spaces so diminishes the quantity of air in the lungs as to speedily cause death by apnoea. Such cases are usually classified in the death-returns under the heading, "congestion of the lungs." I have met with two examples of this condition, and its rarity may be judged from the fact that a physician⁸⁹ of long and extensive experience has met with only five or six cases. In these cases the most notable symptoms is the difficult and unsatisfactory manner in which res-

piration is performed, together with a feeling of weariness and a sense of impending death.

A young butcher of splendid muscular development, exposed himself to cold, and upon his arriving home at 9 p. m. complained of feeling ill. "He said that he felt chilled to the bone and could not get warm; that breathing was rather difficult and unsatisfactory; and repeatedly, in the midst of joyful surroundings, expressed the conviction that he might never leave his bed alive after having entered it that night." He died within five hours, and at the autopsy the lungs were found generally congested and as black as tar.⁹⁷ The left heart and arteries, as well as the pulmonary veins were empty, while the right heart was enormously distended with black blood, as were also the pulmonary arteries and *venæ cavae*. The peripheral veins were collapsed and bloodless.⁹⁸

The amount of dyspnoea does not, however, always bear a definite relation to the extent of pulmonary involvement or other symptoms. In many cases the amount of local inflammation is trifling, yet the difficulty of breathing is very great, whilst in other cases with most extensive hepatization there may be little or no dyspnoea.⁹¹

It has been a widely held opinion⁹² that apical inflammation causes greater dyspnoea than an equally extensive involvement of the lower lobes, but this is not confirmed by my experience. In phthisical subjects dyspnoea is usually slight.⁹³

The dyspnoea may be intensified by a variety of circumstances, *e.g.*, fear, nervous excitement, high fever, bronchorrhœa, obliteration of bronchi; empyema, pleuritic effusion, deformity of the chest, absence of one lung,⁹⁴ pain, enlargement of the spleen or liver, hepatic inflammation or abscess, gastroec-tasis, ascites, abdominal tumors, advanced pregnancy,⁹⁵ obesity, anæmia, spasm of the larynx, cardiac disease, cerebral disorders, etc.⁹⁶

A dyspnoea readily recognizable by the observer, but which is not appreciated by the patient, is of much graver import than that form which so greatly distresses and alarms the sufferer. A most dangerous kind of dyspnoea is that which forbids natural sleep and is aggravated by narcotic drugs. Many of these patients assert that their breathing is not embarrassed, when any one can perceive the contrary. A dyspnoea of this kind, accompanied as it is apt to be, with dusky cheeks; muttering delirium, from which he can be apparently easily aroused to speak of irrelevant matters: increasing dullness of intellect; a viscid, dark expectoration which clings to the teeth and lips and which becomes more and more scanty until it is suppressed; a rising and falling of the trachea with each respiratory act and a clicking noise with each inspiration is full of peril, and a patient presenting such an assemblage of symptoms may usually be considered as doomed to die.⁹⁷

It sometimes occurs that the pneumonic patient passes through several days of illness with only the ordinary amount of respiratory difficulty, when restlessness, prostration, dizziness, tinnitus, delirium, cyanosis, coldness of the surface and extremities, clammy perspiration, a weak and small pulse, and a dreadful sense of thoracic constriction and dyspnoea appear upon the scene, striking consternation and terror to the heart of the experienced observer. Examine the chest, however, and the physical signs are found unaltered; hepatization has not extended its limits, and the unaffected portion of the lungs remains free from complications. What are the causes of the sudden access of these

appalling symptoms? Are they due to chemico-vital changes in the blood acting upon the central nervous system? I am inclined to this view.

A practical point in the recognition of dyspnoea is the fact that it is always increased by exertion. It may be unrecognizable when the patient is at rest, but it is easily appreciated when he moves, coughs, speaks, etc.⁹⁸

In extreme dyspnoea the countenance is congested, livid and anxious; the nostrils dilate to their fullest extent at each inspiration; ⁹⁹ the patient's entire attention is given to his breathing; he constantly attempts to bear his breast and raise his head and shoulders from the bed; he can scarcely speak, and when he attempts to do so it is only by gasps, to be followed by greater difficulty of breathing; and, save an appealing glance at each new-comer, he remains oblivious to his surroundings. Under such circumstances life, usually, cannot long continue,¹⁰⁰ although exceptions to this rule are recorded in my case books. The intensity of the dyspnoea and amount of anxiety measure with comparative accuracy the degree and imminence of the danger present.¹⁰¹

When the dyspnoea is out of all proportion to the amount of lung involved and the other symptoms, attention should be directed to the functions of the kidneys, for it has been noticed that in the case of persons suffering with albuminuria there is apt to be excessive dyspnoea.¹⁰²

With frequent and difficult respiration the speech will be short and gasping, the patient being able to articulate only a few words without taking breath. Lyons¹⁰³ found that his patients could count from four to nine seconds, only, without regaining their breath; but, as the result of numerous observations on this point, I would extend the limits. Some of my patients, at the height of the fever, could easily count up to twenty or twenty-five without taking breath; and, on the contrary, others could with difficulty articulate one, two, three, four—then a gasp.

Moaning and grunting are very frequent symptoms in children,¹⁰⁴ and they have been noticed in adults.¹⁰⁵ There may be pharyngitis,¹⁰⁶ laryngitis,¹⁰⁷ with ulceration,¹⁰⁸ angina, hoarseness and loss of voice.¹⁰⁹

In pneumonic fever the gross aërial capacity of the lungs is diminished by exactly the amount of encroachment of the dilated capillaries and inflammatory products upon the air-cells. Inasmuch as the inspiratory force and normal capacity of the lungs varies within wide limits in every case, it is quite impossible to estimate the diminution of capacity.

The inspiratory force, as measured by the mercurial column, is diminished, and if the hepatization is extensive, the same obtains in expiration.¹¹⁰ As in health, the latter always remains greater than the former.¹¹¹

In three cases Eichorst¹¹² measured the force of respiration as follows: The first case was a laboring woman, aged fifty-nine, with hepatization of the lower lobe of the left lung. Inspiration, 25 millimeters; expiration, 36 millimeters. On the day preceding the crisis it was 31 and 32 millimeters, respectively. The second patient was a laborer, aged 46, with consolidation of the left base. Inspiration, 23 millimeters; expiration, 37 millimeters. Six days after the crisis it was 50 and 57 millimeters, respectively. The third was a laborer, aged twenty-seven, also with hepatization of the left base. Inspiration, 22 millimeters; expiration, 24 millimeters. Later it was 13 and 14 millimeters, respectively. On the day of crisis it was 36 and 38 millimeters, and three days later it was 43 and 46 millimeters, respectively.

PHYSICAL SIGNS.

Percussion.—In pneumonic fever the altered den-

sity and permeability to air of the diseased parts of the lungs give rise to variations in the sound produced when the surface of the chest is percussed. Although a few writers¹¹¹ claim that notable deviations from the normal percussion note may be recognized in the very earliest stages of the disease, yet the majority of authors hold to the opinion that this is not the case: or if slight peculiarities are thought to exist they are so obscure, both in quality and quantity, that deductions of diagnostic value cannot be safely drawn from them. To this latter opinion I must subscribe my assent. After a variable time has elapsed, however, and exudation material has begun to fill the air-cells and drive out the residual air which they had previously contained and the affected portion of lung has entered upon the stage of solidification, percussion gives information which is invaluable and beyond dispute. Juergensen,¹¹⁴ Loomis,¹¹⁵ and others say that no percussion changes can be discovered for at least twenty-four hours, but I cannot so limit the time, for we well know that hepatization begins at a variable period and proceeds with differing degrees of rapidity in different cases. I have been able to appreciate slight dullness and a change in the quality of the percussion note over the inflamed portion of lung, as compared with that from a corresponding point on the opposite and healthy side within three hours after the initial symptoms of the attack, and I have known the full measure of dullness to be attained within twelve hours.¹¹⁶

An obese lady, thirty years of age, was attacked suddenly with a severe chill at 1 p.m., Jan. 23, 1881. I saw her at 4 o'clock and made the following observations: She complained of headache, nausea and a severe pain in the left side of the chest, low down posteriorly, which was aggravated by cough, forced respiration and pressure. The pulse was 80, respirations 24 and temperature 101°. In my presence she expectorated a very viscid, rusty sputum. Over the lower lobe of the left lung posteriorly there was fine, dry crepitation and slight, but appreciable dullness. The malady pursued an ordinary course and convalescence was declared on the fourth day.

In pneumonic fever the pulmonary consolidation is more profound than in any other disease and the resulting dullness is therefore more marked than in any other¹¹⁷—except pleuritic effusion, and with this the differential diagnosis offers no great difficulties. When dullness is complete the pitch of the percussion note is raised, its insensibility diminished, duration shortened, quality hardened and there is lost that peculiar, but indescribable quality normally belonging to it.

In speaking of dullness in these cases we refer, usually to comparative dullness. Absolute dullness is only met with when the bronchi are completely filled with fibrinous exudation.

In order that dullness may be brought out by percussion the hepatized area must be as extensive as the pleximeter and located near the surface. If it is smaller it is not possible to limit the percussion, and if deeply seated the dullness will be obscured by the resonance of the superimposed aerated normal lung tissue. To bring out diminished resonance from deeply seated consolidations strong percussion is necessary. Perry¹¹⁸ thought himself able to locate the depth of a pulmonary consolidation by the amount of force necessary to bring out dullness.

Along the borders of the consolidation the percussion note is lowered in pitch, diminished in intensity, shortened in duration and hardened in quality,—not

to any great extent, but yet perceptibly—whilst in the remainder of the unaffected parts of the lungs the pitch is raised, intensity increased, duration extended and quality abnormally clear and distinct, the result of increased vesicular tension and compensatory function.

In rare cases a tympanic note is elicited by percussing over hepatized parts. Thomas,¹¹⁹ Juergensen¹²⁰ and some others hold that the percussion note has always a tympanic quality, but this I have not been able to appreciate, except as above.¹²¹ It may be due to the proximity of a gaseously distended stomach, a pulmonary cavity or an emphysematous patch. The significance of this sign is sometimes obscure.

In one of Juergensen's¹²² cases there was hepatization of the lower lobe of the left lung. At the height of the sixth and seventh ribs, in the nipple line, there was heard an exquisite tympanic percussion note, which led to the diagnosis of a cavity. At the autopsy nothing but hepatization was found.

In percussing the upper portion of the chest in hepatization of the superior lobes care should be taken to not be misled by the resonance from the trachea and larger bronchi, giving a deceptive impression that the pulmonary tissue beneath is permeable to air. This resonance has a peculiar character and is much louder when the mouth is open than when it is closed. In examining this region the strokes should be only forcible enough to produce a clear note, and no more.

In certain cases, rare in my experience, but thought by some to be not uncommon, there is heard on percussion a peculiar, ringing, metallic sound, called amphoric resonance. It is a common sign of the presence of a cavity, but in these cases it is developed independently of cavities.¹²³ In the few cases in which I have observed this phenomenon there was lacking a plausible explanation of its causation.

Occasionally in the portion of lung immediately adjacent to the hepatized area there is developed by percussion a peculiar sound, a combination of hissing, rattling, blowing and roaring noises, to which Laennec gave the title of "cracked-pot" sound. It is sometimes heard when cavities are present in the hepatized area, but it may occur independently. It is oftenest heard over the apex, when the base is inflamed.¹²⁴ This sound I have seldom heard, and whenever elicited pulmonary cavities or dilated bronchi have always been present.

In some cases in which the subjects have previously had attacks of pleurisy or pneumonic fever, with thickening of the pleura, with non-absorption of the inflammatory products, there may be heard a dull, wooden percussion sound¹²⁵ which may be confounded with the *bruit de pot fêlé*.

In percussing over hepatized lung tissue there is noticeable, besides the dullness, a decided resistance as if the finger, used as a pleximeter, were resting upon a solid body. This sense of resistance cannot be understandingly described, and can only be appreciated by practical experience. It was first noticed by Piorry;¹²⁶ is a very valuable sign, and I have known a physician who was partially deaf to rely largely upon it in making his very exact diagnoses in this disease.

"When the chest wall is subjected to a smart blow with the finger or the percussion hammer, an elliptical elevation of the surface may be frequently observed for a few minutes after the blows. This fact has been remarked by Mr. Lawson Tait, Dr. James Ross . . . and others. . . Recently, too, a Russian author¹²⁷ has investigated the conditions under which the phenomenon is produced, showing that it may be made available, like other reflexes, for diagnostic and chemical purposes. In his observations he made use of a percussion hammer furnished with a spring and index by means of which the force of such blows was registered. The pectoral regions of 100 presumably healthy young men

were examined. The lowest force required to produce the phenomenon . . . was 400 grams and the highest 2,000 grams. . . Still lower figures were obtained on the examination of diseased persons. . . In all chest cases it was noticed that the loco tetanus was more easily produced on the side where the disease was situated, or on that where it was the more extensive; thus in a case of dry pleurisy of the right side, the figures obtained were, for the sound side, 580 grams, and for the diseased side 150 grams.⁷¹²⁸

This phenomenon I have observed in a number of cases of pneumonic fever. It was oftenest noticed in the earliest stages of the disease, and was produced most easily in those cases accompanied by considerable nervous excitement and pain. It was always produced with the least force upon the affected side. In many of my cases the muscular contraction was vibratile, and not tonic, as seems to have been the experience of Philipovich.

In practicing percussion I prefer using a well balanced hammer¹²⁹ and the finger as a pleximeter.¹³⁰ Percussion may be made upon the bared skin, or the patient may be permitted to wear a thin, soft and neatly fitting garment. If he is able to sit erect this position is preferable, although not essential. If unable to sit he should at first lie upon his back whilst the front of the chest is being examined, afterwards turning well forward upon either side whilst the opposite one and the back are being investigated. In either case the muscles should have the same tension on each side. Beginning at the thoracic apex, percussion should be carefully made over corresponding points on either side, proceeding downwards until every part of the chest has been gone over. If abnormal sounds are evoked at any particular spot percussion should be carefully made around it until the boundaries are accurately defined. In examining a patient supposed to be in the earliest stages of pneumonic fever special attention should be directed to the infra-axillary and infra-scapular regions, for it is in these localities that the earliest signs will be noticeable in the majority of instances.¹³¹

The cushion of the middle finger of the left hand should be placed upon the spot to be percussed, and lightly struck with the hammer—only force enough being used, in the first instance, to bring out a clear sound in the normal parts. The force may be afterwards increased or diminished as may be necessary for the purpose of eliciting sounds from the deeper or more superficial parts, or as the chest walls are thicker or thinner. In the case of children and emaciated persons the stroke should be very light indeed.

The patient should be directed to breathe regularly and easily, because when this is done the pitch of the sound is practically the same during inspiration and expiration. If great precision is required the stroke should be made at similar periods of the respiratory act, probably at the end of inspiration. The mouth should at first be closed, but the patient may be directed to open it widely in order to bring out certain sounds. In this connection a large bell¹³² attached to the stethoscope and held about four inches from the patient's open mouth will be found very valuable.

The normal percussion note varies so widely in different persons as to defy intelligent analysis, and the observer should carefully avoid adopting any arbitrary or ideal quality of sound as the normal one for all persons, and regarding any deviations therefrom as evidences of disease. On the contrary he should endeavor by careful observation to form a standard for the individual, and by that alone should the sounds arising from percussing his chest be gauged.¹³³

Percussion may be supplemented by phonometry.¹³⁴ In pneumonic fever if a tuning fork¹³⁵ be placed, whilst vibrating, over the hepatized lung, the sound will be much weaker than when it is placed over healthy parts. Should a cavity be present the note is rendered remarkably clear and strong.

Although scientifically very interesting, yet phonometry is of very little practical importance, because percussion alone gives all the information revealed by the tuning fork and much more besides. In making use of this method particular attention should be given to striking the tuning fork with exactly the same force each time it is applied. This is best accomplished by employing those supplied with a spring hammer.¹³⁶

Succession sounds depend upon the shaking together of the liquid and gaseous contents of large cavities and do not belong properly to pneumonic fever, save rarely in some of its sequelæ, *e.g.*, hydro- and pyo-pneumothorax. They may, however, be sometimes heard in this disease, as when the stomach contains fluids and gases, and lead to erroneous conclusions.¹³⁷

Auscultation.—There has always been a diversity of opinion amongst authors as to the earliest variation from the normal respiratory murmur recognizable by the ear in pneumonic fever. This is easily understood when we remember how seldom it happens that we have an opportunity of seeing such cases in their incipency, and as a consequence, how meager must be the data upon which writers have based their opinions. Most observers since the days of Laennec¹³⁸ have regarded the crepitant râle as the earliest recognizable auscultatory sign in this disease.¹³⁹ Others are of the opinion that the crepitant râle is preceded by other signs, *e.g.*, a harsher, rougher and louder sound than normal—puerile respiration¹⁴⁰—or a diminution and weakening, characterized by superficiality and simple diminution of intensity of the respiratory murmur.¹⁴¹

I have had the opportunity to examine a limited number of cases within a very short time after the inception of the disease, and in every instance there was noticed a weakening of the respiratory murmur. It was diminished in intensity, rendered finer and softer and sometimes so near absent as to give rise to a doubt whether there was present sound or silence. With all this, however, there was conveyed to the ear a sense of nearness of the sound—as if it were in the ear instead of at the end of the stethoscope. This was noticeable only during the chill, or for a very short time thereafter, being very quickly replaced by puerile respiration and the crepitant râle.

After a variable time the crepitant râle appears and can be heard so long as any air enters the air-cells. This is one of the two most important auscultatory signs of the disease, is in a large manner pathognomonic and great reliance should be placed upon its presence.

As illustrating the great value of this sign reference may be made to the case reported by Routh.¹⁴² In this case the crepitant râle was distinctly heard, although there was no dullness on percussion. On this account it was supposed to be a case of capillary bronchitis, until the autopsy revealed hepatization and the true nature of the case. The resonance was due to an emphysematous condition of the surrounding lung tissue.

When in perfection the crepitant râle occurs in trains or puffs of similar short, dry, crackling sounds rapidly succeeding each other and conveying the idea of an immense number of minute explosions. It is confined, except in rare instances, to inspiration and is but heard at the termination of the act. It is occasionally limited to a single puff at the close of inspiration.¹⁴³ The nearer to the surface the diseased action is located the clearer and more distinctly will the sounds be conveyed to the ear. With experience a very exact estimate can be made as to the depth of the inflamed tissues by the apparent distance from which the morbid sounds seem to come.

Coming on during the first hours of the attack this râle is persistent and unchangeable until it is superseded by other phenomena. In case the breathing is very shallow it may not be heard, but in these cases it can usually be brought out by the patient coughing or inspiring deeply.¹⁴⁴

It has been said that both the crepitant râle and the râle

redux, may be made to disappear after a few deep inspirations, but this has never occurred in my experience.

Williams¹⁴⁵ in comparing the sound to that produced by rubbing a lock of hair between the fingers and thumb, slowly and firmly, close to the ear, made a most happy comparison, for the sound produced is almost identical with that of the crepitant râle as it proceeds from the lungs in the first stage of pneumonic fever. It has also been compared to the crackling of wet powder,¹⁴⁶ of salt thrown upon a heated surface,¹⁴⁷ of tissue paper when squeezed in the hand,¹⁴⁸ etc.

"A piece of quite dry tissue paper pressed up into a ball and squeezed in the hand with a variable amount of force, so regulated as to give by practice a finer and finer crackling sound, will, at last represent exactly the character of fine crepitation. Alternate pressure and relaxation by the hand, in time with the time of respiration will even convey something of the general effect that the ear receives when listening at the chest itself, although in *fineness* it hardly comes up to the minute bronchial crepitus."

With this sound, as with all the attributes of living matter, it must be remembered that it is not amenable to rigid and unvarying laws, but that it is variable in presence, quantity and quality and is possessed of only general characteristics.

Various theories have been advanced as to the cause and seat of the crepitant râle. Some hold that it is caused by bursting of a vast number of minute bubbles in the air-cells or finest bronchioles,¹⁴⁹ or to the passage of air through fluid in the same situation.¹⁵⁰ Some consider the mere contact of air with fluid in this place sufficient to produce it.¹⁵¹ Others that the forcible separation of the walls of the air-cells and bronchioles, agglutinated by viscid fluid, is the cause.¹⁵² Walshe¹⁶³ and his followers believe that the sound originates in the pulmonary parenchyma and is due to the expansion of the walls of the air-vesicles, infiltrated with inflammatory products. Leaming,¹⁵⁴ Cammann,¹⁵⁵ and others,¹⁵⁶ hold that this sound does not arise within the lungs, but is caused by pleuritic creaking. Pressure of the air upon the walls of the air-sacs is considered the cause by Sturges.¹⁵⁷ Gerhard,¹⁵⁸ Williams¹⁵⁹ and others think that the sound originates in the finest bronchi only.

There are some physiological facts which do not appear to have been appreciated by some of the architects of the various theories referred to and which prevent our acceptance of them. For example; the air entering the alveoli does not rush in and out with each respiration, but the air in them is changed by a diffusion of gasses. The vesicles do not collapse with expiration—nine-tenths of the air in the lungs at the end of an inspiration remains in the vesicles and bronchi during expiration.

Coming on during the stage of engorgement, the crepitant râle continues until hepatization is completed, after which it is no longer heard. This statement would be strictly true if the inflammatory process did not spread and if it pursued an equally rapid course in all parts of the affected lung; but this is not often the case. Practically, every grade of inflammation is present at the same time, and in most cases, in some part—generally on the outskirts of the affected portion of lung—crepitant râles may be heard the greater course of the disease.

The crepitant râle is encountered in some other pulmonary diseases.¹⁶⁰ *e. g.*, œdema, apoplexy, bronchitis, phthisis, syphilis, etc.—besides pneumonic fever, but, taken in connection with the ordinary rational symptoms of the malady, it is highly diagnostic, if not pathognomonic.

Janeway¹⁶¹ asserts that he has met with a few cases in which the crepitant râle was heard in the initiatory stage of pleurisy—due, according to the observer, to a separation of the sticky surfaces of the pleura. I am inclined to doubt the correctness of this observation, and believe that his cases were associated with a superficial, perhaps transient inflammation of the pulmonary parenchyma. I consider

this a more satisfactory explanation of the phenomenon than that advanced by Janeway, which presupposes the formation of a vacuum or the presence of air or gas in the pleural cavity.

A fine, dry crepitation, heard, during deep inspiration only, at the base of the lungs, behind, may be met with in some persons—children especially¹⁶²—with perfectly healthy lungs, and may lead to error if the fact is lost sight of.¹⁶³

The crepitant râle may be lacking¹⁶⁴ because of an entire absence of all respiratory sounds in some cases, and this, too, independent of bronchial obstruction,¹⁶⁵ although this is usually the cause.¹⁶⁶ It may be continuous or intermittent. In the former it is due to obstruction of the bronchi or to the fact that the portion of lung affected is not supplied with moderately large bronchi, and in the latter to temporary obstruction of the bronchi.¹⁶⁷

After hepatization is complete bronchial respiration becomes the distinctive local auscultatory sign of pneumonic fever.¹⁶⁸ This usually appears in about twenty-four hours, although I have met with it as early as eight hours after the initial chill.¹⁶⁹ This is a hard, rough sound, like that caused by blowing through a tube, and is heard at first only on expiration,¹⁷⁰ but very soon during both inspiration and expiration and often most distinctly during the first named act. The expiratory sound is higher pitched and more intense than normal, and is prolonged so as to equal or even exceed in length that of inspiration.¹⁷¹ It is heard in consolidation of lung tissue from any cause, but it is more distinct in this disease than in any other, for the reason that in it the consolidation attains its greatest development. The larger and more numerous the bronchi traversing the affected part of the lung, the more pronounced will be the sound. It is, therefore, more marked in the upper than in the lower lobe. Indeed when the root of the lung is affected the sound may simulate cavernous respiration.¹⁷² When only a thin, superficial part of the lung, or one free from large bronchi, is inflamed, the resulting bronchial breathing is thin and ribbon-like¹⁷³ and lacks in sonorousness. As the case progresses toward resolution the bronchial breathing takes on a harsher, but less tubular character; gradually becomes moister and finally loses its tubularity. In rare cases diffuse blowing takes the place of the bronchial breathing, and in still rarer cases there are no sounds whatever to be heard.

The theory of bronchial blowing and respiration which has been most extensively adopted is that it is the natural bronchial breathing transmitted with extraordinary distinctness through the condensed and highly conducting lung tissue; and that the blowing sound has its origin in the smaller, and the tubular sound in the larger bronchi.¹⁷⁴ Some writers object to this explanation on the ground that the air contained in the bronchi of the affected part is stagnant, or nearly so, and reason that the sound originates in the trachea and is conducted to the ear through the column of air and the condensed pulmonary tissue.

Eller¹⁷⁵ has advocated some novel views regarding the origin of these sounds. He claims that the passage of air through the bronchi never originates such sounds, and that if care be exercised, when a full and rapid inspiration is practiced, that no sound is generated in the upper air passages, no tubular breathing will be noticeable over the trachea or larger bronchi. If, however, sounds are produced in the parts named they are clearly heard over the trachea and larger bronchi, and are identical with the so called bronchial respiration. In his experiments "a patient with catarrhal pneumonia of the right apex, in whom there was the so-called bronchial respiration, was requested to inflate

the chest and then remain perfectly immovable. At the moment when the chest was at rest, air was forced through a glass tube against the soft palate, producing a blowing sound which was heard as bronchial breathing by a person whose ear was applied to the chest. If during respiration no sound was caused by the passage of air through the parts above the trachea, none was heard by the ear applied to the chest." Similar experiments in pleurisy and pneumonic fever, both in man¹⁷⁶ and upon the horse,¹⁷⁷ gave similar results.¹⁷⁸

In health the two acts of respiration—inspiration and expiration—follow each other so closely as to convey to the ear the idea of a continuous movement, but in all the varieties of bronchial respiration there is a distinctly appreciable pause between them.¹⁷⁹ In some cases the inspiratory sound is of an interrupted character, in which the different divisions are of unequal length. In my own experience this has usually been found in connection with severe pain on inspiration.

In listening at the chests of pneumonic patients there is often heard moist râles, due to an excessive amount of fluid in the bronchi, and various other râles and murmurs of indeterminate origin and no particular significance. Some of these sounds are decidedly musical in character.¹⁸⁰ Some of them may be dissipated by coughing and others remain permanently.

In almost every case there is exaggerated respiration in the portion of lung adjacent to the hepatized area,¹⁸¹ and this is the more noticeable the nearer the ear approaches the solidified parts. Whenever such exaggerated breathing is encountered we may rest assured that patient search, or time, will reveal hepatization in the neighborhood.¹⁸² This may, in some instances, be the only auscultatory evidence obtainable of consolidation, especially when it is centrally located, and, if the rational symptoms are sufficiently pronounced, it is usually ample evidence for the localization of the inflammatory process.¹⁸³

Boling¹⁸⁴ has noticed in three cases of apical hepatization, and erroneously presumed its presence in all cases of pneumonic fever, a peculiar, fine mucous or crepitant ronchus seated in the larger bronchi, but appearing to come from the trachea, audible at a distance of two or three feet, and persistent after efforts at expectoration, and which, although very annoying to the listener, is unnoticed by the patient. I have noticed this phenomenon in several cases, basic as well as apical. The sound evidently originates above the trachea, and not in the bronchi. It is often the precursor of the tracheal râle, and of death. The sign is one of evil import and indicates a failure of reflex nervous sensibility.¹⁸⁵

Vocal resonance may be for a time weaker than normal over the solidified lung, probably due to temporary obstruction of a large bronchus. It may be permanent when the pleura is thickly covered with lymph.¹⁸⁶ It bears no necessary relation to vocal fremitus. Increased bronchophony, however, is the rule.¹⁸⁷ The increase in intensity is usually but slight, although it may be marked. Its limits may be sharply or indistinctly defined. It is best heard posteriorly, and it may possess an ordinary character, or it may have a metallic, sniffling, tremulous or bleating quality. It is simply the laryngeal voice and echo, conducted with more than ordinary clearness and intensity by the solidified lung to the ear of the listener.¹⁸⁸ It is heard most distinctly in the case of patients having a bass voice, and much less clearly when the voice is high-pitched.

Ægophony sometimes exists in connection with bronchophony, and the one may pass into the other. It is heard only near the inferior angle of the scapula

and on a line from that point toward the nipple, although seldom extending so far. It is oftenest heard in persons having shrill, cracked and quavering voice—*e.g.*, in aged females. Bronchophony can often be changed to ægophony when the patient speaks "through the nose."¹⁸⁹ It has been supposed to be due to a thin layer of fluid separating the lung from the chest-wall¹⁹⁰—interrupting the larger and coarser vocal sounds, but allowing the passage of the more subtle harmonics.¹⁹¹ Davies¹⁹² and other, however, hold that it is caused by a plug of tenacious mucus in a bronchus which acts as a vibrating tongue.

Cristoph¹⁹³ has described a sound midway between bronchophony and ægophony, which he has called ægony. It is described as being like the first half of the sound of ægophony, but lacking the latter half. This sound, if recognized, is merely a curiosity and of no practical importance.

Whispering pectoriloquy may also be heard in some rare cases of pneumonic fever.¹⁹⁴

Hourmann¹⁹⁵ has called attention to the phenomenon of autophony in pneumonic hepatization. If the observer applies his ear lightly to the chest, over the diseased lung, and speaks in a natural tone, his voice seems to be returned to him from within the patient's chest.

In almost every case of pneumonic fever the pleura is inflamed to a greater or less extent, and in some of these there may be heard the auscultatory signs of this condition. The principal one of these is the well-known friction sound, which may be described as having a grazing, rubbing, grating or creaking character. It is often developed or intensified by the pressure of the stethoscope. It may be heard in the very earliest stages, but is often recognizable only during resolution. In case the lower lobes are the parts inflamed it can be best and oftenest heard in the axillary line.¹⁹⁶ The finer and more delicate sounds are heard in those parts of the chest having but little mobility, whilst the coarser and rougher ones are heard in those which move more freely. These sounds are heard in this disease less frequently than in primary and uncomplicated pleurisy.

Creaking sounds, resembling pleural friction, may be heard, at times, about the costal cartilages in aged persons, due to interstitial dryness of the cartilages.

From the earliest days of auscultation it has been recognized that the physical signs of pneumonic fever sometimes appear late in the history of the case—are in fact retarded. In these cases the general and local symptoms point with more or less clearness to the existence of the disease, yet we are unable to demonstrate the presence of hepatization by means of percussion or auscultation, and the attack progresses from five to eleven days before the appearance of appreciable physical signs.¹⁹⁷ This may be due either to a late localization of the morbid process¹⁹⁸ or to its being at first, centrally situated.¹⁹⁹

Not only may the physical signs be long held in abeyance in this disease, but they may remain altogether absent.²⁰⁰ Fitz²⁰¹ records a case in which careful examinations during life failed to afford any auscultatory evidence of pneumonic fever, yet the autopsy revealed hepatization of the bases of both lungs.

The cause of the absence of these sounds is often obscure and uncertain.²⁰² It has been thought due, in aged persons especially, to the presence of emphysema.²⁰³ When supposed to be absent I have occasionally caused them to appear by directing the patient to cough.

Failure to recognize the possibility of the absence of auscultatory signs in pneumonic fever may lead to dangerous

or even fatal results. In Wintrich's case³⁰¹ pleuritic effusion was thought to be present and paracentesis was attempted.³⁰² The patient died, and at the autopsy the lung was found hepatized and the bronchial tubes filled with fibrinous casts.³⁰³

The physical signs of pneumonic fever persist from a few hours to several weeks, and usually disappear first from those portions of the lung last involved.

With the beginning of resolution there is heard a kind of crepitation called "crepitation redux." This sound, unlike the fine, dry crepitation belonging to the earlier stages of the disease, is a moist one, and is heard during both inspiration and expiration. It may be described as a mixture of dry crepitant, subcrepitant and mucous râles.³⁰⁴ It continues more or less prominently, until resolution is fully completed,³⁰⁵ and is due, according to Sturges,³⁰⁶ to the forcible re-opening of collapsed or obstructed bronchioles by the ingoing current of air. Although almost universally present, yet in some cases convalescence may be perfectly completed without this sign appearing.³⁰⁷ This may be due to bronchial obstruction,³⁰⁸ removable by coughing.

After the disappearance of the râle redux and when the patient considers himself entirely recovered, some very fine crepitation may yet be heard, posteriorly, in some persons. This depends upon an oedematous conditions of the pulmonary tissues in this situation.³⁰⁹

Auscultation of the chest, throughout the entire course of the disease, is of the utmost importance to the diagnostician; revealing to him many signs, pathognomonic, distinctive and confirmatory, without which he would often be tossing about upon a boundless sea of uncertainty and doubt.

In practicing this art I prefer for many and important reasons, to use a flexible, binaural stethoscope.³¹⁰ The patient should lie or sit in an easy, unconstrained manner, with the thoracic muscles relaxed and the surface bared. All friction with the instrument should be avoided, and if the chest is covered with hairs they must be wetted. The cup of the stethoscope must be accurately applied throughout its entire circumference and with only force enough to keep it in place. The patient should breathe regularly and in an ordinary manner, until requested to inspire deeply. The examination should be symmetrical and thorough, and unless detrimental to the patient, it should be repeated once or twice daily. No pains should be spared by the physician in becoming an accomplished auscultator, for upon this will often depend his reputation and the patient's safety.³¹¹

The diagnosis of pneumonic fever can, and sometimes must be made upon the general and local symptoms, independent of the evidence afforded by percussion and auscultation. This is especially true in the early stages of the attack, or when the physical signs are absent or delayed. Therefore, as important as are these aids to diagnosis the attention of the practitioner ought not be concentrated upon them to the exclusion of other phenomena of primary and vital importance to a complete understanding of the case.

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- 60 See also Beigel, London Lancet, N. Y., 1864, Vol. i, p. 242;—Guitrac, Ibid., 1863, Vol. i, p. 63;—et al.
- 61 Path. Anat. Phila., 1856, Vol. iv, p. 66.
- 62 See Fox, Op. cit., p. 165;—Green, Quain's Dic. Med., p. 878;—Grisolle, Traité de la Pneumonie, Paris, 1841;—Guttmann, Phys. Diag., N. Y., 1880, p. 23;—Juergensen, Op. cit., S. 93;—Walshe, Op. cit., p. 281;—Wintrich, Virchow's Handb., Bd. v, S. 84;—Ziemsen, Op. cit., S. 236.
- 63 Per contra see Woillez, Inspec. etc. de la Pointrine, Paris, 1838.
- 64 Fox, Op. cit., p. 165;—Walshe, Op. cit., p. 25.
- 65 See also Feldhausen, Inaug. Dissert., Gött., 1879, S. 20;—Fox, Op. cit., p. 182;—Walshe, Op. cit.
- 66 Ranking's Abstract, No. 11, 1850, p. 170.
- 67 Juergensen, Op. cit., S. 92, never saw a case.
- 68 I have also met with this phenomenon in a case of pure pleuritis and am inclined to consider it a symptom belonging to the attendant pleuritis rather than to the pneumonic inflammation.
- 69 Aretæus, Deleus et Sig. Acut. Morb.;—Chomel, Op. cit., S. 127;—Fox, Op. cit., p. 167;—Huxham, Epidem. Dis., London, 1748, p. 59;—Volkmann, Inaug. Dissert., Erlangen, 1847, S. 20;—and others describe it as being colder than normal.
- 70 See Baker, Causation of Pneumonia, Lansing, 1883, p. 288;—Flint, Physiology of Man, Vol. i, p. 423;—Kirkes, Physiology, edited by Baker and Harris, N. Y., 1885, p. 315;—Miller, Chemistry, N. Y., 1884, Pt. i, p. 200;—Bosworth, N. Y. Med. Jour., Apr. 24, and May 1, 1886, and Phila. Med. News, Aug. 4, 1886, p. 117;—Flick, Pfeuffer's Arch., Bd. xlvii, S. 127, 1887;—Remy, Thèse de Paris, 1887;—Rosenthal, Handb. d. Physiol., Bd. iv, Heft. 2, S. 389;—Adelon, Phys. de l'Homme, Paris, 1829.
- 71 Chloroform-like. See Phila. Med. World, Aug. 1885, p. 259.
- 72 See Copland, Med. Dic. Vol. ii, p. 881;—Guy de Chauliac, Tract. ii, cap. v, p. 113;—Hecker, Epidem. 1791;—Ozanam, mal. Epidem., T. iv, p. 71;—Sturges, Op. cit., p. 4;—Thucydides, Opera;—et al.
- 73 See Davy, Phil. Trans., 1820;—Demarquay, Gaz. Méd., 1865, p. 496;—Ewald, Du Bois, Raymond's Arch., 1875, S. 176;—Fleischl, N. Y. Med. Rec., Sept. 17, 1887, p. 414;—Foster, Physiol., 1878, p. 275;—Fox, Op. cit., p. 167;—Servier et St. Lager, Comp. Rend. de l'Acad. des Sci. T. xxviii, 1841;—Holt, N. Y. Med. Rec., Feb. 14, 1883, p. 177;—Nysten, Recher. Phys. Chem., Paris, 1811;—Pettenkofer, u. Voigt, Ann. d. Chem. u. Pharm., Bd. cxli, Heft. 3;—Raynard, Rech. Expmt. Respirator., Paris, 1879;—Thedgold, Warming and Ventilation, p. 77;—West, London Lancet, 1887, Vol. ii, p. 359;—et al. Heuriot and Richet, N. Y. Med. Rec., Apr. 2, 1887, p. 394, have described a method of estimating the amount of oxygen absorbed

and carbonic acid exhaled. A gasometer measures the volume of air inhaled, and a second that of the air expired; this air is then passed through potash and subsequently through a third gasometer. The difference between the second and third meters gives the carbonic acid exhaled, and the difference between the first and third the oxygen absorbed.

- 75 See Expts. of Tyndal and others, *Lancet*, 1887, Vol. ii, p. 1217.
 76 Aretæus, *Op. cit.*—Baginsky, *Op. cit.*, S. 43;—Celsus, *De Med. Lib. iv*, cap. vii;—Chomel, *Op. cit.*, S. 125;—Dietl, *Lungenentzündung*, Wien, 1853, S. 29;—Dutcher, *Cincinnati Lancet and Observer*, Jan. 1861, p. 10;—Fox, *Op. cit.*, p. 163;—Heiss, *Inaug. Diss.*, München, 1867, S. 8;—Holt, N. Y. Med. Rec., Apr. 7, 1888, p. 385;—Juergensen, *Op. cit.*, S. 85;—Lépine, *Pneumonia*, Wien, 1883, S. 42;—Rosse, *Crisis of the Corwin*, Wash., 1883, p. 16;—Huxham, *Op. cit.*, p. 59;—et al.
 77 See also U. S. Marine Hosp. Rpts., 1886, p. 223;—Fox, *Op. cit.*, p. 164;—Killick at Barthez, *Op. cit.*, p. 264;—*Op. cit.*, p. 164;—Wunderlich, *Inaug. Dissert.*, Tübingen, 1858, S. 19;—et al.
 78 U. S. Marine Hosp. Rpts., 1886, p. 223.
 79 Martyn, *London Lancet*, N. Y., 1854, Vol. i, p. 533.
 80 My records contain a large number of cases in which the dyspnea was very intense, and in many it had peculiar characteristics.
 81 *Acut. Morb.*, Lib. xi, cap. xxix.
 82 Fox, *Op. cit.*, p. 164;—Ziemssen, *Op. cit.*, S. 224.
 83 *Med. Clinic*, Phila., 1843, Vol. xi, p. 88.
 84 *London Lancet*, N. Y., 1875, Vol. xi, p. 225.
 85 See Dietl, *Acute Pneumonie*, Wien, 1848, S. 55.
 86 See Frederica, *London Lancet*, 1887, Vol. xi, p. 383;—Nitschmann, *Arch. f. Phys.*, Bd. xxxv, S. 558.
 87 See Juergensen, *Berliner k. Wochenschr.*, 1884, Nr. 17 u. 18.
 88 See Bennett, *Med. Times and Gaz.*, Oct. 23, 1853;—Fleury, *Bull. de la Soc. Anat.*, T. xiii, p. 165;—et al.
 89 Davis, *Jour. Am. Med. Ass.*, Oct. 13, 1883, p. 415.
 90 Leuf, *Am. Jour. Med. Sci.*, Jan. 1885, p. 84.
 91 Reynaud, *Thèse de Paris*, 1852, p. 15, saw a patient die with an entire lung hepatized, yet there had been no dyspnea, and such cases are by no means very rare.
 92 See Andral, *Op. cit.*, p. 186;—Lépine, *Pneumonie*, S. 42;—Watson, *Prac. Physic*, Phila., 1845, p. 580. Denied by Fox, *Op. cit.*, p. 164;—Grisolle, *Op. cit.*,—Satterthwaite, *Phila. Med. News*, Jan. 5, 1889, p. 5.
 93 See Gerhard, *Diseases of the Chest*, Phila., p. 267.
 94 See Therman, *Jour. Am. Med. Ass.*, Jan. 24, 1884, p. 98.
 95 Wells, *Jour. Am. Med. Ass.*, Dec. 18, 1886, p. 677.
 96 See *Jour. Am. Med. Ass.*, Aug. 15, 1885, p. 178.
 97 See Sturges, *Pneumonia*, London, 1876, p. 59, for a very graphic description of this condition, which he deems less dangerous than I have indicated. See also Baginsky, *Pleuritis u. Pneumonie*, S. 43;—Heiss, *Inaug. Diss.*, München, 1857, p. 8.
 98 In this manner it may be found to antedate the physical signs.
 99 See Holt, N. Y. Med. Rec., Apr. 7, 1888, p. 385;—Townsend, *Jour. Am. Med. Assoc.*, Dec. 1, 1888, p. 789;—et al.
 100 See Andral, *Op. cit.*, p. 187;—Baglivi, *Prax. Med.*, Lugd., 1699;—Eberle, *Prac. Med.*, Phila., 1831, Vol. i, p. 289;—Richter, *Opusc. Med.*, Franc., 1780;—and others.
 101 See also Chomel, *Op. cit.*, S. 297.
 102 Meigs, *Cincinnati Lancet and Clinic*, Nov. 11, 1882, p. 460.
 103 Edinburgh, *Med. and Surg. Jour.*, 1827.
 104 See Holt, N. Y. Med. Rec., April 7, 1888, p. 385;—Townsend, *Jour. Am. Med. Assoc.*, Dec. 1, 1888, p. 789;—et al.
 105 This was very marked in three of my adult patients, one an aged man. See also N. Y. Marine Hosp. Rpts., 1883, p. 194.
 106 Sometimes due to acidity of the expectoration, as in some of my cases and in the Plymouth epidemic. See Huxham, *Epidem. Diseases*, London, 1748.
 107 Louis, *Phthisis*, Boston, 1836, p. 48;—Stortz, *Inaug. Dissert.*, Würzb., 1884, S. 60;—Scheef, *Inaug. Dissert.*, Tübing., 1882, S. 39.
 108 Stortz, *Inaug. Diss.*, Würzburg, 1884, S. 64.
 109 See Andral, *Op. cit.*, p. 165;—Fox, *Op. cit.*, p. 163;—Johnson, *London Lancet*, N. Y., 1864, Vol. ii, p. 521;—Putnam-Jacobi, N. Y. Med. Rec., April 3, 1886, p. 401;—Homburger, *Inaug. Dissert.*, Strassb., 1879, p. 58;—Stortz, *Op. cit.*, S. 60;—Putnam-Jacobi, N. Y. Med. Rec., April 3, 1886, p. 401.
 110 For further information consult Bonder's, *Henne's u. Pfeiffer's Zeitschr.*, 1853;—Eichhorst, *Arch. f. k. Med.*, Bd. xi, S. 268;—Elsberg, N. Y. Med. Jour., Nov., 1875, p. 469;—Grant, *London Lancet*, N. Y., 1864, Vol. ii, p. 658;—Hales, *Statistical Essays*, London, 1738, Vol. i, p. 270;—Hutchinson, *Capacität d. Lungen*, Braunschweig, 1849;—Mendelssohn, *Mechanismus d. Respiration*, Berlin, 1845;—Salter, *London Lancet*, N. Y., 1865, Vol. ii, p. 225;—Waldenberg, *Die Pneumatische Behandlung*, etc., Berlin, 1875;—Kellogg, *Trans. Mich. St. Med. Soc.*, 1888;—et al.
 111 See also Foster, *Cyclop. Anat.*, Vol. v, p. 1058;—*Am. Jour. Med. Sci.*, Vol. v, p. 189.
 112 *Op. cit.*
 113 See Piorry, *Traité de Méd. Prat.*, Paris, 1813, T. iv;—et al.
 114 Ziemssen's *Handb. Spec. Path. u. Therap.*, Bd. v, 3te Aufl., S. 95.
 115 *Phila. Med. News*, Feb. 7, 1885, p. 161.
 116 See Fox, *Reynolds's Syst. Med.*, Phila., 1880, Vol. ii, p. 167;—Walsh, *Phila. Med. News*, Feb. 7, 1885, p. 161;—et al.
 117 Auenbrugger, *Inventum Novum*, etc., Vien., 1761, Sec. 20-21.
 118 *Diagnose*, etc., T. i, p. 507.
 119 *Arch. d. Heilkunde*, Bd. vii, S. 93.
 120 *Op. cit.*, S. 90.
 121 For further information see Baümeler, *Arch. f. k. Med.*, Bd. i, S. 141;—Böthingk, *Inaug. Dissert.*, Würzb., 1873;—Hayden, *Dublin Jour. Med. Sci.*, 1866, Vol. xli;—Homburger, *Op. cit.*, S. 105;—Lavran, *L'Union Méd.*, 1884, No. 55;—Routh, *London Lancet*, N. Y., 1865, Vol. ii, p. 148;—Schapira, *Inaug. Dissert.*, Würzb., 1877, S. 35;—Skoda, *Auskultation u. Perkussion*, Wien, 1843;—Stokes, *London Lancet*, N. Y., 1855, Vol. ii, p. 125;—Sturges, *Pneumonia*, London, 1876, p. 49;—U. S. Marine Hosp. Rpts., 1883, p. 214;—Walshe, *Dis. Lungs*, Phila., 1860, p. 76;—Wintrich, *Lungenentzündung*, Erlangen, 1843;—et al.
 122 *Op. cit.*, S. 97.
 123 For further information see Baumberger, *Deutsche Klinik*, 1850, S. 118;—Baümeler, *Op. cit.*, S. 115;—Lépine, *Pneumonie*, Wien, 1883, S. 48;—Skoda, *Op. cit.*, S. 20;—Stern, *Virchow's Jahresb.*, 1871, S. 118;—Walshe, *Op. cit.*, p. 26;—Wegelin, *Correspondenzb. f. Schweiz. Aerzte*, 1876;—Wintrich, *Op. cit.*;—et al.
 124 See also Fox, *Op. cit.*, p. 168;—Grisolle, *Traité de la Pneumonie*, Paris, 1841;—Guttman, *Phys. Diag.*, N. Y., 1880;—Laennec, *Traité de l'Auscult. Médiate*, Paris, 1819;—Lépine, *Op. cit.*, S. 48;—Juergensen, *Op. cit.*;—Skoda, *Op. cit.*, S. 20;—Sturges, *Op. cit.*, p. 49;—Vergely, *Bordeaux Méd.*, 1875;—Walshe, *Op. cit.*, p. 75;—Swett, *Disease of the Chest*, N. Y., 1886;—Wintrich, *Op. cit.*;—et al.
 125 See also Skoda, *Op. cit.*, S. 22.
 126 Philipovich, of Odessa. See *Jour. Am. Med. Assoc.*, February 5, 1887, p. 132.
 127 See also Finlayson, *Phys. Diag.*;—Graves and Stokes, *Dublin*

- Hosp. Rpts.*, 1830, Vol. v, p. 70;—Hudson, N. Y. Med. Rec., May 9, 1888, p. 509;—Janeway, *Ibid.*, May 16, 1885, p. 552;—Page, *Ibid.*, p. 552;—Tait, *Dublin Jour. Med. Sci.*, 1871, Vol. iii, p. 216.
 128 The hammer employed is a sphere of bell metal, weighing one ounce, having a circular groove fitted with a rubber ring. The handle and is eight inches long. See Traux's *Surgical Catalogue*, Chicago, 1887, p. 214;—Vernon, *London Lancet*, N. Y., 1858, Vol. i, p. 376.
 129 Soft rubber makes an allowable substitute.
 130 See also Hudson, N. Y. Med. Rec., May 9, 1885, p. 505.
 131 See Bianchi, *Rivista Clinica*, 1883;—Bonfigli, Italian translation of Guttman's *Phys. Diag.*, 1873;—Cammann, N. Y. Med. and Surg. Jour., July, 1840;—Et al.
 132 In examining patients reclining upon metallic spring mattresses care should be taken not to confound the metallic notes therefrom with any sounds emanating from within the chest.
 133 Examining the chest with the tuning fork.
 134 Preferably sounding "A."
 135 See Guttman, *Berliner k. Wochenschr.*, 1873, Nr. 7.
 136 See, for further information, Auenbrugger, *Op. cit.*;—Janeway, *Jour. Am. Med. Assoc.*, August 2, 1884, p. 118;—Lanfranc, *Chirurg.*;—Lépine, *Pneumonie*, Wien, 1883;—Lewinski, *Berliner k. Wochenschr.*, 1884, S. 45;—Raimondi, *Rivista Clinica*, 1883, Nos. 7 et 8;—Et al.
 137 *Traité de l'Auscult. Médiate*, Paris, 1819.
 138 See Drake, *On Fevers*, Phila., 1854, p. 858;—Flint, *Prac. Med.*, Phila., 1868, p. 182;—Grisolle, *Traité de la Pneumonie*, Paris, 1841;—Skoda, *Auskultation u. Perkussion*, Wien, 1843, S. 249;—Sturges, *Pneumonia*, London, 1876, p. 46;—Trousseau, *Clin. Med.*, Phila., 1873, Vol. i, p. 662;—Wintrich, *Lungenentzündung*, Erlangen, 1843, S. 12;—Zehentmayer, *Auscult. u. Percuss.*, Wien, 1843, S. 232;—Et al.
 139 *London Lancet*, 1884, Vol. ii, p. 136;—Copland, *Med. Dic.*, N. Y., 1855, Vol. ii, p. 881;—Fox, *Reynolds's Syst. Med.*, Phila., 1880, Vol. ii, p. 167;—Gerhard, *Dis. Chest*, Phila., 1860, p. 188;—Griesinger, *Virchow's Handb. d. Spec. Path. u. Therap.*, Bd. ii, S. 43;—Heiss, *Inaug. Diss.*, München, 1852, S. 7;—Hermann, *Lungenentzündung*, Würzb., 1880, S. 11;—Juergensen, *Ziemssen's Handb. Spec. Path. u. Therap.*, Bd. v, Leipzig, 1877, S. 38;—Lépine, *Pneumonie*, Wien, 1883, S. 49;—Niemeyer, *Pneumonie*, Stuttgart, 1876, S. 6;—Smith, *Edinb. Med. and Surg. Jour.*, November, 1866;—Thietie, *Inaug. Diss.*, Jena, 1865;—Waters, *London Lancet*, 1865, Vol. i, p. 147;—Walshe, *Dis. Lungs*, Phila., 1860, p. 280;—Wunderlich, *Spec. Path. u. Therap.*;—Folkman, *Inaug. Diss.*, Erlangen, 1847, S. 24;—Et al.
 140 See Green, *Quain's Dic. Med.*, N. Y., 1884, p. 878.
 141 *London Lancet*, N. Y., 1855, Vol. xi, p. 118.
 142 See Bettelheim, *Lépine's Pneumonie*, Wein, 1883, S. 50;—Sturges, *Pneumonia*, London, 1876, p. 215.
 143 See Sturges, *Op. cit.*, p. 49;—Ziemssen, *Pleuritis and Pneumonie*, Berlin, 1862, S. 242.
 144 *Diseases of the Chest*, London, 1835.
 145 Gerhard, *Diseases of the Chest*, Phila., 1860, p. 189.
 146 Andral, *Med. Clinic*, Phila., 1843, Vol. xi, p. 187;—Watson, *Prac. Phys.*, Phila., 1845, p. 576.
 147 Sturges, *Op. cit.*, p. 45.
 148 See Andral, *Op. cit.*, p. 188;—Clark, N. Y. Med. Gaz., 1880;—Watson, *Op. cit.*, p. 576;—Wintrich, *Inaug. Diss.*, Erlangen, 1843, S. 11;—et al.
 149 Blackiston, *Dis. Chest*;—Satterthwaite, *Phila. Med. News*, Jan. 5, 1889.
 150 Rindfleisch, *Path. Histol.*, Phila., 1872, p. 424;—Rokitansky, *Path. Anat.*, Phila., 1856, Vol. iv, p. 68;—et al.
 151 Chomel, *Pneumonie*, Leipzig, 1841, S. 105;—Flint, *Prac. Med.*, Phila., 1868;—Guttman, *Phys. Diag.*, 1880, p. 117;—Green, *Quain's Dic. Med.*, p. 879;—Juergensen, *Op. cit.*, S. 100;—Niemeyer, *Percuss. u. Auscult.*, Erlangen, 1873, S. 87;—Rachibor, *Precis. du Diag.*, p. 740;—Spittal, *Auskultation*, 1830;—et al.
 152 *Op. cit.*, p. 112 and *London Lancet*, May 19, 1849.
 153 N. Y. Med. Rec., May 25, 1878, and N. Y. Med. Gaz., Feb. 7, 1880.
 154 N. Y. Med. Jour., July 7, 1885, p. 8.
 155 Burt, *Phys. Expl. Chest*, N. Y., 1889, p. 73;—Jackson, *Chicago Med. Stand.*, Aug. 1889, p. 40;—et al.
 156 *Op. cit.*, p. 243.
 157 *Diseases of the Chest*, Phila., 1860, p. 190.
 158 *Op. cit.*
 159 *Op. cit.*
 160 See Heiss, *Inaug. Diss.*, München, 1887, S. 7;—Jackson, *Op. cit.*, p. 40;—Satterthwaite, *Op. cit.*, p. 5;—Schuyler, N. Y. Med. Jour., October 13, 1883, p. 400;—Sturges, *Op. cit.*, p. 47;—Et al.
 161 *Jour. Am. Med. Assoc.*, August 2, 1884, p. 118.
 162 Winters (N. Y. Med. Rec., February 21, 1883, p. 217) asserts that in pneumonic fever as it affects the infant the crepant râle is rarely met with. This has certainly not been my experience.
 163 See Walshe, *Op. cit.*, p. 112.
 164 See Fox, *Reynolds's Syst. Med.*, Phila., 1880, Vol. ii, p. 167.
 165 See Alison, *Edinb. Med. and Surg. Jour.*, August, 1850;—Andral, *Op. cit.*, et *Med.-Chir. Rev.*, 1826, p. 514;—Eberle, *Prac. Med.*, Phila., 1831, Vol. i, p. 288;—Fox, *Op. cit.*, p. 168;—Laennec, *Dis. Chest*, N. Y., 1830;—Walshe, *Op. cit.*, p. 94;—et al.
 166 Kennedy, *Dublin Med. Press*, April 24, 1850.
 167 See *Phila. Med. News* and *Abst.*, August, 1881, p. 182.
 168 See Andral, *Op. cit.*, p. 188;—Laennec, *Op. cit.*, p. 214, Fox, *Op. cit.*, p. 163;—Traube, *Ann. d. Charité*, Bd. i, S. 286, and others, claim that bronchial breathing may sometimes be heard during the stage of engorgement. See the experiments of Aufrecht, *Deutsche Arch. f. k. Med.*
 169 Fox, *Op. cit.*, p. 170, has heard it within twelve hours. Loomis (N. Y. Med. Jour., February 7, 1885) doubts whether it can appear earlier than this, whilst Starr (*Ibid.*, p. 166) thinks it can. See also Grisolle, *Traité de la Pneumonie*, p. 295;—Sturges, *Op. cit.*, p. 69;—Et al.
 170 See Fox, *Op. cit.*, p. 169;—et al.
 171 See Loomis, *Phys. Diag.*, N. Y., 1878, p. 40;—Satterthwaite, *Phila. Med. News*, January 5, 1889, p. 5) says that prolonged expiration precedes tubular breathing. See also Jackson, *Memoirs*, Boston, 1855;—Cowan's *Louis on Phthisis*, Boston, 1836, p. 203.
 172 Walshe, *Op. cit.*, p. 99.
 173 Chomel, *Op. cit.*, S. 112;—Gerhard, *Op. cit.*, p. 267;—Grisolle, *Jour. Hebdom. de Méd.*, 1839, T. iii, p. 81.
 174 See Andral, *Op. cit.*, p. 212;—Chomel, *Pneumonie*, Leipzig, 1841, S. 111;—Copland, *Med. Dic.*, N. Y., 1855, Vol. i, p. 201;—Elliotson, *Prac. Med.*, Phila., 1844, p. 753;—Gerhard, *Dis. Chest*, Phila., 1860, p. 61;—Juergensen, *Op. cit.*, S. 104;—Laennec, *Op. cit.*, p. 31;—Lawson, *Consumption*, Cincinnati, 1861, p. 350;—Sturges, *Op. cit.*, p. 49;—Swett, *Dis. Chest*, N. Y., 1886, p. 191;—Walshe, *Dis. Lungs*, p. 100;—Et al.
 175 Boston Med. and Surg. Jour., July 5, 1877, p. 1.
 176 Ellis, *Op. cit.*, p. 1;—Powell, *Quain's Med. Dic.*, N. Y., 1884, p. 1188.
 177 See Bondet et Chauveau, *Rev. Mensuelle*, 1877.
 178 For further information on these and other views see Baginsky, *Pneumonie u. Pleuritis*, Tüb., 1880, S. 18;—Barth et Roger, *Traité de l'Auscultation*, Paris, 1841;—Boufflaud, *Clin. Méd.*, Paris, 1837, T. iii;—Clark, N. Y. Med. Gaz., 1886;—Dittmar, *Gaz. Méd. de Strassburg*, 1885;—Foussagrives, *L'Union Méd.*, 1887;—Günsburg, *Klinik d. Kreislaufs u*

Athmungsorgane, Breslau, 1857;—Guttmann, Klin. Untersuchungs Meth-odes, Berlin, 1884, S. 139;—Heiss, Inaug. Diss., München, 1857, S. 7;—Flint, Respiratory Organs, Phila., 1866, p. 172;—Griffolle, Traité de la Pneumonie, Paris, 1864;—Jour. Am. Med. Assoc., April 11, 1885, p. 39;—Lépine, Pneumonie, Wien., 1883;—Niemeyer, Pneumonie, Stuttgart, 1876, S. 9;—Oppolzer, Vorlesungen, Erlangen, 1870;—Philipp, Kasper's Wochenschr., February 1, 1890;—Skoda, Perkussion u. Auskultation, Wien., 1843, S. 106;—Swigger, Virchow's Arch., Bd. ii, S. 238;—Todd, Med. Times and Gaz., May 1, 1892, p. 483;—Watson, Prac. Phys., Phila., 1845, p. 538;—Williams, Cyclop. Prac. Med., London, Vol. iii, p. 406;—Ziemssen, Pleuritis u. Pneumonie, Berlin, 1862;—Et al.

¹⁷⁹ See Andral, Clin. Méd., Paris, T. iv, p. 369;—Fournet, Rech. Clin. sur l'Auscultation, Paris, 1839;—Jackson, Mém. de la Soc. Méd. l'Obsv., T. i, p. 14;—Louis, Clin. Méd.;—Piorry, Précis du Diag., p. 165;—Thompson, London Lancet, N. Y., 1832, Vol. i, p. 7;—Et al.

¹⁸⁰ See also Cousins, London Lancet, N. Y., 1862, Vol. i, p. 192.

¹⁸¹ Swett, Dis. Chest, p. 90, says that the respiratory murmur in this vicinity is weakened.

¹⁸² See Andral, Op. cit., p. 189.

¹⁸³ Fournet, Op. cit., has noticed that this exaggeration of the respiratory murmur sometimes persists for a long time after convalescence, but this is not confirmed by my experience.

¹⁸⁴ Am. Jour. Med. Sci., July, 1847.

¹⁸⁵ Respiratory sounds may be recorded and reproduced by the phonograph. See Bleyer, N. Y. Med. Rec., Nov. 17, 1888, p. 386;—Porter, St. Louis Med. Rec., Nov., 1888.

¹⁸⁶ See Sturges, Op. cit., p. 48.

¹⁸⁷ See Fox, Op. cit., p. 168;—et al.

¹⁸⁸ See Walshe, Op. cit., p. 137;—et al.

¹⁸⁹ See Copeland, Op. cit., Vol. i, p. 204.

¹⁹⁰ See Garland, Pneumono-Dynamics, N. Y., 1878.

¹⁹¹ See Stone, St. Thomas' Hosp. Repts., Vol. xi, 1871. See also Stone and Graham, London Lancet, 1867, Vol. i, p. 111.

¹⁹² Physical Diagnosis, London, 1851, p. 100.

¹⁹³ Gaz. Méd. de Paris, Aug. 21, 1847.

¹⁹⁴ See Fox, Op. cit., p. 169;—Piorry, Op. cit., p. 480;—Walshe, Op. cit., p. 126.

¹⁹⁵ Jour. l'Experience, T. iv.

¹⁹⁶ See Juergensen, Op. cit., S. 104. I consider this a very important fact to bear in remembrance.

¹⁹⁷ See Andral, Op. cit.;—Clark, London Lancet, N. Y., 1881, Vol. i, p. 253;—Koettitz, Inaug. Dissert., Halle, 1882, S. 17;—Hall, Lond. Lancet, N. Y., 1881, Vol. i, p. 253;—Scheef, Inaug. Diss., Tübingen, 1882, S. 28;—Taylor, London Lancet, N. Y., 1881, Vol. i, p. 255;—Tyson, Ibid.;—et al.

¹⁹⁸ See a former page of this treatise.

¹⁹⁹ Haw (London Lancet, 1887, Vol. ii, p. 911) has shown that the physical signs may appear late, even when the inflammation is superficial.

²⁰⁰ Syers, London Lancet, 1890, Vol. i, p. 791;—et al.

²⁰¹ Boston Med. and Surg. Jour., Feb. 17, 1876, p. 192.

²⁰² See Fox, Op. cit., p. 169.

²⁰³ Goodhart, London Lancet, N. Y., 1881, Vol. i, p. 253.

²⁰⁴ Virchow's Handb. d. Spec. Path. u. Therap., Erlangen, 1855, Bd. v, S. 229;—see also his Inaug. Dissert., Erlangen, 1843, S. 10 n. 25.

²⁰⁵ When a hypodermic needle is thrust into hepatized lung tissue blood flows, which is not the case in the healthy state. See Lépine, Jour. Am. Med. Assoc., Nov. 28, 1885, p. 600.

²⁰⁶ In one case bronchial rales, increased vocal resonance and tubular breathing were heard, with discovery post-mortem, of some consolidation but no consolidation, U. S. Marine Hosp. Rpts., 1889, p. 366;—See also Crisp, London Lancet, N. Y., 1856, Vol. ii, p. 352.

²⁰⁷ See Clark, N. Y. Med. Gaz., 1880.

²⁰⁸ Juergensen, Op. cit., S. 102, has heard it eighteen days after crisis.

²⁰⁹ Op. cit., p. 46.

²¹⁰ See Ranking, Prov. Med. and Surg. Jour., May 17, 1848, and others.

²¹¹ C. rol, Rev. Méd., Mai, 1829;—Thesè de Paris, 1831, No. 244.

²¹² See Clark, N. Y. Med. Gaz., 1880.

²¹³ By preference Dennison's. See Truax's Surg. Catalogue, Chicago, 1887, p. 318;—Haupt, Arzth. Intelligenzbl., 1884;—Paton (Jour. Am. Med. Assn., Aug. 11, 1883, p. 110) and others prefer a solid "hearing staff." See also Pollock, London Lancet, N. Y., 1856, Vol. ii, p. 24.

²¹⁴ For further information consult Beau, Arch. Gen. de Méd., 1834;—Blackiston, Diseases of the Chest;—Janeway, N. Y. Med. Rec., Jan. 9, 1889, p. 51;—Laennec, Traité de l'Auscultation Médiate, Paris, 1819;—Leonard, London Lancet, N. Y., 1854, Vol. i, p. 224;—Salter, London Lancet, 1861, Vol. i, p. 57;—Skoda, Op. cit.;—Skerritt, Jour. Am. Med. Assoc., Vol. iv, p. 153;—Spittal, Edinb. Med. and Surg. Jour., Vol. xii;—Van Santvoord, N. Y. Med. Rec., Jan. 9, 1886, p. 51;—Walshe, Op. cit.;—Winters, N. Y. Med. Rec., Feb. 21, 1885, p. 217;—Wintrich, Pneumonie, Erlangen, 1848;—Eve, N. Y. Med. Rec., Apr. 18, 1885, p. 430;—et al.

Ill.; Geo. J. McKelway, Philadelphia, Pa.; Edward Martin, Philadelphia, Pa.; H. P. Merrill, Portland, Me.; A. W. Nichols, Greenville, Mich.; A. H. Ohmann-Dumesnil, St. Louis, Mo.; S. D. Preshey, Taunton, Mass.; A. Ravogli, Cincinnati, Ohio; Merrill B. Ricketts, Cincinnati, Ohio; Frank Ring, St. Louis, Mo.; Fred. W. Robbins, Detroit, Mich.; Geo. H. Rohé, Baltimore, Md.; Chas. P. Russell, Utica, N. Y.; Wm. E. Shaw, Cincinnati, Ohio; J. V. Shoemaker, Philadelphia, Pa.; C. A. Siegfried, Naval Station, Newport, R. I.; J. R. Simms, Union Grove, Wis.; E. A. Smith, Detroit, Mich.; Chas. L. Van Pelt, Toledo, Ohio; F. C. Warne, East Jordan, A. M. Wilson, Kansas City, Mo.; Elizabeth Woods, Toledo, Ohio; W. C. Wright, Jackson, Mich.

In the absence of the Secretary, Dr. McGuire, Dr. Ravogli, of Cincinnati, was elected Secretary *pro tem*.

The Chairman, Dr. Bulkley, read an address upon "Recent Advances in the Treatment of Diseases of the Skin."

Dr. Carrier, of Detroit, remarked upon the value of ichthyol, but thought he had found it rather objectionable on account of its odor, and the staining of the linen, resulting from its use.

Dr. Duhring, of Philadelphia, noted that Dr. Bulkley had remarked in his paper that no remedy of any value had as yet been reported in connection with dermatitis herpetiformis. He had found, however, that sulphur was valuable in this complaint. He used an application of sublimated sulphur and oil, equal parts. The discovery of its efficacy was accidentally found, and he recommended it as the most effective remedy with which he was acquainted. He believes that it acts upon the nerves of the skin, thus checking the disease.

In regard to antimony in skin diseases, he has used it with good result in eczema, and in certain other inflammatory diseases where the nervous system is involved. He used it in very small doses, and considered it a nerve tonic. He had used resorcin externally, but generally in rather mild strength, usually from ten to twenty grains to the ounce.

Dr. Russell, of Utica, called attention to the reference made to antipyrine internally in pruritic affections; he had not used it, but wished to call attention to the value of the salicylate of sodium in affections of an itchy character.

Dr. Duhring then read a paper upon "The Local Treatment of Acute Vesicular Eczema."

Dr. Russell, of Utica, read a paper upon "Eczema of Infancy and Childhood, with Special Reference to Etiology and Dietetic Treatment."

Dr. Elliot, of New York, sent a paper, which was read, entitled "Note on Reflex Eczema in Childhood."

Dr. Bulkley read a paper on the "Diagnosis and Treatment of Eczema Seborrhoicum."

These four papers were discussed together.

Dr. Ohmann-Dumesnil, of St. Louis, believed that there was some external causative element in eczema seborrhoicum; he regarded it probably as an inflammatory condition of the sweat glands; the abundant secretion produces irritation, and subsequent inflammation of the glands; he remarked on its occurrence upon the chest, and in places where there was excessive perspiration. He had found sulphur of value externally, but had seen the disease come back very shortly after its use. He also believed in the value of resorcin in this disease.

Dr. Garry, of Boston, remarked that eczema seborrhoicum was always very much worse in warm weather, and that while it would often disappear easily in cold weather, with the ointment of resorcin, he had found it to be much more rebellious to the same treatment in warm weather. He inquired if others had observed the influence of temperature in this disease?

Dr. Bulkley said that he regarded this as a very important matter; that he had constantly noticed in his practice that the affection was always aggravated in warm weather. He explained this by the supposition that the parasitic element probably found more propitious conditions to growth during warm weather, with the more abundant moisture upon the skin, than when the opposite conditions exist.

Dr. Shoemaker, of Philadelphia, in commenting upon Dr. Duhring's paper, remarked that he had found the remedies mentioned in connection with vesicular eczema very valuable, but wanted to call special attention to the value of Pond's extract, either pure, or diluted with water and glycerine. He had not had much experience in eczema seborrhoicum, but thought that constitutional treatment was also required, in connection with external applications. Externally he had had good results from euophen, and also from aristol, either of them in the strength of fifteen grains to the ounce in ointment.

AMERICAN MEDICAL ASSOCIATION.

SECTION OF DERMATOLOGY AND SYPHILOGRAPHY.

FIRST SESSION, JUNE 7, 1892.

L. DUNCAN BULKLEY, CHAIRMAN.

Names of those registering at the Sessions of the Section on Dermatology and Syphilography, American Medical Association, Detroit, June, 1892:—J. E. Atkinson, Baltimore, Md.; A. P. Biddle, Detroit, Mich.; L. W. Bliss, Saginaw, Mich.; W. F. Breakey, Ann Arbor, Mich.; L. Duncan Bulkley, New York, N. Y.; A. E. Carrier, Detroit, Mich.; A. B. Chapin, Mount Clemens, Mich.; E. W. Davis, Saginaw, Mich.; L. A. Duhring, Philadelphia, Pa.; M. V. B. Dunham, Greenfield Hill, Conn.; W. H. Dunlap, Syracuse, N. Y.; James H. Dunn, Minneapolis, Minn.; J. Orton Edie, Grand Rapids, Mich.; H. F. Ewers, Union City, Mich.; M. Felton, Troy, N. Y.; D. E. Fuller, Hastings, Mich.; E. P. Garry, Boston, Mass.; J. C. Hannan, Hoosac Falls, Mass.; E. B. Harrison, Napoleon, Ohio; A. Hazlewood, Grand Rapids, Mich.; M. L. Herr, Lancaster, Pa.; J. W. Holiday, Barber's Creek, Ga.; A. M. Hume, Owosso, Mich.; John L. Irwin, Detroit, Mich.; Samuel C. Johnson, Hudson, Mo.; J. K. Leaning, Cooperstown, N. Y.; G. Frank Lydston, Chicago, Ill.; James A. Lydston, Chicago,

Dr. Ricketts, of Cincinnati, said that he had heard the original paper on the subject of *eczema seborrhoicum*, by Dr. Unna, in Washington, in 1887, and had observed quite a number of instances of the eruption since. He mentioned the case of a gentleman, who had the eruption on the head and neck for some time, and had made use of many remedies, but was finally cleared by a 15 per cent. of white precipitate ointment. He then had a relapse, and failed to get relief with this ointment, but the disease was finally removed by a rather strong ointment of red precipitate.

Dr. Duhring said that he believed that we should not put too much confidence in the entity of *seborrhoic eczema* as a disease. He thought the name was not applicable to many of the cases to which it was given. Fifteen years ago he had called attention to *seborrhœa* as it existed on the body; it being previously only spoken of as affecting the scalp. He believed that *eczema* was often complicated with true *seborrhœa* of the face and the body, composing a mixed process in which sometimes one or the other element would predominate, and he said that he had seen many cases here and abroad which had been diagnosed *seborrhoic eczema* to which he was not willing to give this name; he thought that they were *eczema* or *seborrhœa* as the case might be. The affection in his opinion was not so common as indicated by the figures given by Dr. Bulkley. In *seborrhœa* there was commonly no itching; he mentioned a marked case of *seborrhœa* where there had been plaques on the cheeks and about the mouth, which had existed for many years, but had never had any itching. The eruption had disappeared after some local applications, but Dr. Duhring believed that some of these cases were not cured, but were only relieved by treatment. In *seborrhœa*, as he had described it, the sebaceous glands are affected, and somewhat involved in an inflammatory process: the disease he thought was not produced by any parasitic element, and was not contagious. The treatment of both *eczema seborrhoicum* and *seborrhœa* he believed to be largely local, and under the use of sulphur or resorcin they both usually got well, but the *eczematous* disease would yield the less readily of the two. He believed it to be very important to have the differential diagnosis between a simple *seborrhœa* and *eczema seborrhoicum*.

Dr. Bulkley remarked that the paper of Dr. Elliot in regard to reflex *eczema* was one full of suggestions, and that it was a subject that it was well to bear in mind in treating cases of this disease. He could quite bear out Dr. Elliot's observations which were made largely at his clinic of the New York Skin and Cancer Hospital. All were well aware of how common it was to see an *eczema* infantile develop or appear along with the cutting of each tooth, and he had had repeated occasion to observe the recurrence of the eruption with each digestive disturbance.

He wished to compliment Dr. Duhring upon the clear and excellent presentation of the subject of the local treatment of *eczema* in children; it so constantly occurs that harsh and irritative measures are used, that one cannot remember too well that the milder, soothing treatment will often accomplish more in this condition. He, himself, made much use of the tar and zinc ointment, which he had presented to the profession some years ago, consisting of unguentum piceæ of the pharmacopœia, diluted three times with rose ointment, with a small amount of oxide of zinc in it. No single preparation had ever given him anything like the satisfaction which had come from using this, which when spread thickly, or applied firmly, served as a rule to check all irritation.

In regard to the matter of *seborrhoic eczema*, he believed with Dr. Duhring that it was still under investigation, and he, himself, was not wholly satisfied with regard to its true nature, or the position it should have in dermatological classification. He was confident, however, that it existed to a very much greater extent than was commonly supposed, and he did not think that the numbers he had mentioned were far from being correct. Clinically it had helped him a good deal in practice to recognize these cases, as the treatment was often much simplified thereby. To one who had watched the matter any length of time, it was really surprising to see what the proper use of resorcin or sulphur, or of both properly combined, will do in these cases, many of which had formerly proved obstinate under ordinary treatment.

Dr. Ravogli remarked that the topic of *eczema* was a most interesting one, but that he would be inclined to do away with the word *eczema* entirely, as void of sense, and use for it some word explanatory, such as *catarrhal dermatitis*; but this, however, would probably be impossible now, as the designation *eczema* was so widely known, and gener-

ally used by practitioners at large; but he would not think it worth while to use the adjectives *erythematous*, *vesicular*, *pustular*, because they really designate little, if anything, in regard to the character of the disease. What is wanted to-day is to add to the word *eczema* an adjective which may give us an idea of the etiology of the trouble, such as the designation *nervous*, or *seborrhoic*, or *tubercular*, or *parasitic*.

From the description given by Dr. Duhring, of vesicular *eczema*, he inferred that nervous *eczema* was intended, or the acute *eczema* of Hebra, which suddenly appears, with symptoms of inflammation, vivid redness, and the active formation of vesicles, which soon break, giving existence to abundant serum.

The speaker called this nervous *eczema*, because he considered that it showed clearly the reflex action of the trophic nerves. He mentioned the case of a gentleman who had a peculiar idiosyncrasy against tobacco, and every time he attempted to smoke a cigar, he was affected with an eruption of this kind the following day.

This acute *eczema* does not generally last long, but will dry up in a few days, although it is apt to return. Repeated applications of starch powder he regarded as the most beneficial treatment, but in case the burning and inflammatory symptoms are very prominent, he gave cold applications with diluted liquor plumbi subacetatis.

In regard to *eczema seborrhoicum*, the speaker agreed with Dr. Duhring that the disease was not so very frequent, and that some care must be exercised in making the diagnosis. Before Unna had written his full description of the eruption, he had classed certain cases as *eczema marginatum corporis* which to-day he recognized as *eczema seborrhoicum*; he thought, however, that there were cases of *seborrhœa* combined with *eczema* which had nothing to do with the disease under consideration. He had, however, found resorcin to be very valuable in both classes of cases, and used it in strength of thirty to fifty grains to the ounce.

The committee for the nomination of officers was then appointed, consisting of Dr. Russell, of Utica, Dr. Ohmann-Dumesnil, of St. Louis, and Dr. Carrier, of Detroit.

SECOND SESSION—JUNE 8, 10 A.M.

The Chairman reported to the Section the action of some of the other Sections, in regard to having the transactions reprinted in a separate volume, with the papers and the discussion therein, with also a list of those attending the Section to be printed in connection with the same. The suggestions were accepted, and it was voted to have the proceedings of the Section of Dermatology and Syphilography thus prepared and issued.

Dr. Ricketts then read a paper entitled "Report of Forty Cases of Psoriasis Treated Exclusively with Arsenious Acid."

Dr. Ohmann-Dumesnil remarked that psoriasis was one of the most peculiar eruptions which we have to deal with. In some mild cases he had seen good results from local treatment alone, some eruptions disappearing entirely under oil of cajuput, but it was very apt to return after a few months.

Dr. Duhring said that the essayist had spoken of his forty cases of psoriasis collectively, whereas he thought that every case of psoriasis must be considered individually. Sometimes cases of *eczema* resembled psoriasis so much that they could with difficulty be distinguished from that eruption. In those cases of psoriasis which exhibited inflammation, he thought arsenic internally only aggravates the disease, whereas in cases of uniform psoriasis, chronic in character, arsenic could be given in suitable doses. We must therefore distinguish the type and grade of psoriasis. Arsenic is sometimes useful in the beginning of the treatment, but afterwards proves injurious. In many cases he himself left the patient without any internal medication, relying exclusively upon external treatment, which alone is sufficient to remove the eruption, internal treatment being used only as peculiar indications may require. In conclusion, he thought that it was an error to put forth any remedy as a specific for this disease.

Dr. Hume inquired as to what observations Dr. Ricketts had made in regard to the recurrence of the eruption after treatment by arsenic.

Dr. Carrier stated that in one case of psoriasis he had observed pustules after arsenical treatment; as the pustules, the lesions of psoriasis return. He believed that we can often obtain better results by local measures than by internal medication.

Dr. Beardsley had used the arseniate of copper with good results, and believed that you could accomplish more by a

combination of internal and external treatment than by either alone.

Dr. Russell had observed the best results from arsenic in psoriasis diffusa; locally he had had the best results from white precipitate in ointment, and had also used with success the biniodide of mercury, in ointments of moderate strength.

Dr. Herr remarked upon the diversity of opinion which had been expressed, but he himself believed that arsenic was of great value in psoriasis, and had seen patients with this eruption whose nutrition was very poor, and who had been helped a great deal by it. He, however, employed local treatment as well, and was specially inclined toward salicylic acid, in the form of ointment.

Dr. Shoemaker remarked that arsenic was a valuable remedy at times, but it certainly was no specific for the eruption. The selection of remedies for psoriasis depended largely upon the type of the disease, and its cause. In cases exhibiting inflammatory conditions, antimony internally had proved useful in his hands in bringing the epidermis to a normal condition. In the more chronic forms of the eruption iodide of potassium had given him good results. He remarked upon the uncertainty of the solutions of arsenic often found in the drug stores, and thought well of using the salts of arsenic themselves. He called attention, also, to the hypodermic use of arsenic, the dose being pushed quite high, and claimed that better results came therefrom than when it was administered through the stomach. He also mentioned its use in the form of rectal suppositories. It often happens, however, that after the case has seemed to be cured, the eruption will be found to return, greatly to the disappointment of the physician and patient.

Dr. Bulkley remarked that there was no absolute specific for the disease. To illustrate, however, the actual power of arsenic in certain conditions, he referred to its effect in bullous eruptions, mentioning a report that he had made of a dozen or more cases, many in children, where arsenic controlled the affection entirely. To secure results, however, arsenic, he believed, should be given in small doses very frequently repeated; indeed, he commonly administered it every two hours when it was desired to produce a rapid, certain effect. The dose could be pushed very considerably, and he had given even up to five drops every two hours, for a period of several days, not only with no harm, but with immediate control of the eruption and benefit to the patient. Ordinarily he began with two drops every two hours, and increased by a portion of a drop every day either until the eruption had yielded or there were some very definite signs of its disagreement with the patient. If it acted on the bowels too freely there was no objection to giving a little opium in conjunction with each dose. When administered in this manner he had seen from day to day bullous lesions soften and dry up, and in his own person had experienced very remarkable results from this treatment, even after three or four doses of arsenic had been taken. He had employed arsenic thus frequently and freely for many years, and had yet to see any reason for believing that any harm could come from it.

In regard to psoriasis, he considered that the eruption could sometimes be entirely controlled by it, but this was not very often the case. He quite agreed with Dr. Duhring that great care must be exercised in regard to the diagnosis, and also in regard to the stage and form of the disease. In the inflammatory forms, arsenic would certainly often aggravate the eruption greatly. In cases which had existed a long time, when arsenic was used it sometimes proved very effective, and is the only remedy which would hold the eruption in check.

He mentioned one case, that of a very intelligent clergyman who had taken the remedy very continuously, certainly for over ten years, in medium doses, and when an account was made some time ago, it was found that he had consumed in all nearly a gallon of Fowler's solution. In regard to the form of arsenic which was recommended by the essayist, he had found the solution in hydrochloric acid, which was known some time ago as De Valangin's solution, very valuable, and had repeatedly advised its use.

He agreed, however, with all the speakers that the local treatment of psoriasis constituted a very important element in its control. Upon the scalp and face he employed very largely the white precipitate in ointment. He had been recently using with most excellent results the *gallacetophenone* in a 10 per cent. ointment, which had given him better results than almost any remedy; this should be freely rubbed in morning and night, the scales having been previously removed, if they existed in any quantity. This

had the advantage over chrysophanic acid in not staining the clothing.

For the treatment of local patches about the body it was often very desirable to apply chrysophanic acid in collodium, painted over the spots, and the very best results were also obtained by painting them with pyrogallic and salicylic acid, combined together in flexible collodium.

Dr. Carrier raised the question as to whether chrysophanic acid acted only on the locality to which it was applied, or if there was any action on the general system. He referred to an observation which he had made, in which the remedy was applied to but one-half of the body, and the psoriatic patches disappeared upon the other side where no application had been made.

Dr. Shoemaker thought that chrysophanic acid was very objectionable, either in ointment or in solution, on account of the great staining produced, but when incorporated in soap he regarded it as very useful, removing the scales, and acting readily without staining.

Dr. Ricketts in closing the discussion said that he never intended to state that arsenic was a specific for psoriasis, neither did he think that mercury was a specific for syphilis. He believed that arsenic had some influence upon the peripheral nerves, increasing the supply of blood, and causing the skin to be better nourished and the epidermis to be restored. In regard to the cases which he had mentioned, he stated that there was the greatest variety of the forms of psoriasis among them, varying from the mildest to the most universally diffused. He thought that the hypodermic administration of arsenic was the most accurate and effective manner in which it could be applied, and he had injected the arseniate of soda in half grain doses twice a day, without any inconvenience or consecutive abscesses. He preferred solutions of arsenic to using it in pill form, as he believed that in the latter instance there was danger of not securing an accurate dose. He spoke favorably in regard to the use of soap, mentioning a preparation in which albumen was incorporated with it, which he had recommended some time before.

Dr. Ravogli then read a paper upon "The Influence of the Nervous System in certain Disturbances of the Skin."

Dr. Dunlap congratulated the writer upon the full and accurate mode in which the subject had been worked up. He inquired in regard to one of the cases mentioned under the title of atrophic macule, as to whether it was not really one of morphea?

Dr. Herr mentioned the case of a young lady subject to epilepsy, who had discoloration on the cheek which he had regarded as of neurotic origin; there was no sensation in the spot to the insertion of a pin. She suffered also much with cephalalgia. He mentioned also another case where the pigment was entirely absent from the hand; the patient suffered from Addison's disease, from which he died, and on post-mortem the supra-renal capsules were found completely degenerated.

He believed with the essayist that all these disturbances of pigmentation were dependent upon nervous disturbances.

Dr. Duhring remarked that there were affections of the skin which were really not so-called skin-diseases, and therefore, the essayist did well to call them disturbances of the skin; their causation was often found in derangement of the nervous system, and he wished to confirm the views of the writer. In regard to the criticism that had been made that there was no consideration of the treatment in this group of cases, he remarked that the ground taken by the author was quite correct in such an essay, for really there was no definite treatment for these cases; each case required special treatment. He believed that the sympathetic nervous system is very commonly involved in these cases.

Dr. Ohmann-Dumesnil referred to a case of which he had published some time ago, of leucoderma symmetricum, which had occurred in a lady affected with anæmia of the spinal cord. He also mentioned a case of periodic hyperidrosis in a lady, which he believed dependent upon the disorder of the sympathetic nerves; the supra-renal capsules are considered abdominal ganglia, and from the quantity of pigment which is developed in Addison's disease, may be inferred the correctness of this theory. He mentioned cases illustrative of the nervous element in these affections, such as one of atrophy of the skin and muscles in a girl, after a severe burn; and another case where a quantity of warts was distributed along the nerve tracts. He also mentioned alopecia areata as a nerve disturbance in many instances, and he believed also that hypertrophies and atrophies of the skin were also of nervous origin.

Dr. Bulkley remarked upon the influence of nerve disturbances in connection with skin lesions, and referred to a number of papers which he had published on the subject.

Dr. Dunlap, of Syracuse then read a paper upon "Pemphigus Hæmorrhagicus, or Purpura Bullosa."

Dr. Ravogli thought that we should be very careful in applying the term pemphigus to cases, as very many which were formerly called by this name, were now referred to as dermatitis herpetiformis bullosa; the characteristics of this latter eruption which guide us are the polymorphism of the lesions, the presence of pruritus, the frequent relapses in spite of the apparent good health of the patient. In the case referred to by the essayist, there was found some polymorphism, but the patient was in very poor general condition, and there was complete pruritus, which would favor the diagnosis given; he thought it very important to distinguish between the two eruptions named, because of the difference in their prognosis, which in the former was favorable, although the eruption would prove tedious, whereas pemphigus was essentially a fatal disease.

Dr. Russell was rather inclined to regard the case as one of dermatitis herpetiformis, on account of the polymorphism, the relapses and the redness appearing before the evolution of the bullæ.

Dr. Duhring remarked that he had followed the writer closely, and he believed the case to be one of pemphigus hæmorrhagicus. Hæmorrhage was not uncommon in connection with bullous disease, but on the other hand, cases of true pemphigus were very rare; cases were reported now and again, with such names as pemphigus nervosa, but he believed the time was not far distant when the term pemphigoid would disappear from our nomenclature. He referred to a case recently observed in a woman who was afflicted with a bullous disease, which was due to disordered menstrual function. He thought we must change and qualify our ideas of various diseases, classifying the atypical cases with the types and considering them as varieties of well known diseases.

Dr. Bulkley remarked that in New York it was common to use the name hydroa when referring to many bullous eruptions of more or less uncertain character, preserving the name pemphigus for only a certain proportion of those which could be pretty clearly classed as such; under dermatitis herpetiformis they were classifying many atypical vesiculo-bullous eruptions which presented the features referred to of polymorphism, pruritus, frequent relapses, and grouping of the individual lesions. In regard to the case referred to by the writer, he was in doubt if it would be properly called one of pemphigus, nor would he rank it as dermatitis herpetiformis, on account of the absence of pruritus. He called particular attention to the value of arsenic in repeated and frequent doses, in controlling the eruption of pemphigus, and urged its more frequent use in this manner.

AFTERNOON SESSION, JUNE 8.

The Report of the Nominating Committee was presented, and the following officers were elected for the ensuing year: Chairman, Dr. L. A. Duhring, Philadelphia. Secretary, Dr. W. H. Dunlap, of Syracuse. Executive Committee, Dr. L. Duncan Bulkley, Dr. Ohmann-Dumesnil, Dr. A. Ravogli. Dr. Russell then read a paper entitled, "Acute Circumscribed (Edema of the Skin)."

Dr. Ohmann-Dumesnil referred to the case of a laborer who had his finger scratched, and on the following day cutaneous oedema, appearing like urticaria, set in, whiter than the normal skin; it was bathed in a solution of bi-chloride of mercury, and disappeared in a few days. He thought that cases of this kind were the result of an inflammatory process in the lymphatic vessels, due always to a slight infection.

Dr. Duhring remarked that he had never seen a similar case, but referred briefly to that of a lady who suddenly had great difficulty in swallowing, and large swellings appeared here and there upon the mucous membrane of the throat and mouth. The diagnosis of urticaria tuberosum was made, and he believed that this eruption had a close relation to the condition described by the speaker.

Dr. Ravogli said that he had frequently seen oedema of skin limited to certain regions, especially upon the limbs, and found that there was always a certain degree of lymphangitis. Careful examination would always reveal the presence of a scratch, or an abrasion, or a pustule covered with a crust, which he believed was the point of entrance of the virus, giving rise to lymphangitic affection.

Dr. Bulkley said that he had now and again met with a

case of oedematous swelling, which was red and with burning sensation, which he did not consider infective, but rather angioneurotic; he believed that the lesions in the case described by the essayist were of this nature, rather than inflammatory and lymphangitic affections.

Dr. Ohmann-Dumesnil exhibited models in plaster of Paris, the superior maxilla of patients, to show certain anomalies of the teeth and palate in syphilitic and non-syphilitic subjects. He also exhibited two scapulae, and two astraguli, affected with osteitis, which were exceedingly light. In the scapulae the disease had rendered the bones almost transparent.

Dr. Ohmann-Dumesnil then read a paper entitled, "Some Successful Methods in the Treatment of Alopecia Areata."

A paper by Dr. Jas. H. Dunn, of Minneapolis, was also read by Dr. Russell, entitled, "A Case of Tubercular Adenitis, with General Alopecia and Pruritus."

Both papers was discussed together.

Dr. Wilson referred to a case of general alopecia, in a letter-carrier, who lost the hair off the entire body in a very short time. Under the use of pilocarpin, one-tenth of a grain internally, and electricity, the hair was entirely restored in a short time.

Dr. Herr said that he had treated a number of cases of alopecia areata, some of neurotic origin, and some parasitic. In some cases now under treatment, he had used the carbolic acid, according to the method recommended by Dr. Bulkley, and had satisfactory results with it. He had now in his clinic two cases of boys belonging to the same family, under treatment. He was inclined to believe that most cases were of parasitic nature.

Dr. Shoemaker, of Philadelphia, believed that applications of massage, combined with galvanism, gave the best results; cases varied, however, and some are particularly obstinate. He had never used the pure carbolic applications, and feared to do so after some personal experience with carbolic acid, which he had gotten accidentally upon his own face.

Dr. Russell remarked that he did not see many cases of alopecia areata, but nearly all of those which came under his observation he believed to be of neurotic origin. He had commonly employed the French method, with cantharidal collodion, up to producing vesication, applying with an ointment containing thirty grains of the yellow sulphate of mercury to the ounce; he had also had very good results in the application of an ointment of chrysophanic acid, thirty grains to the ounce.

Dr. Duhring said that he was very much interested in the paper, but inquired how Dr. Dumesnil would distinguish between the two varieties of alopecia, the neurotic and parasitic, which he had mentioned; he himself was not able to distinguish between the two, and had never seen any cases in which the parasitic origin could be considered as proven. Although his cases seemed to be of neurotic origin, he did not deny that occasionally the disease seemed to be contagious, as sometimes several would occur in one family, but such had not fallen under his observation. He did not think that much could be accomplished by local treatment, but the most reliance should be placed upon the nutrition of the nerves of the patient.

Dr. Ravogli congratulated the essayist upon his attempt to clear up so perfectly the matter of alopecia areata by placing some cases as neurotic, and others as parasitic, but as long as it is seen so clearly that atrophy of pigment, and also of connected tissue, can be produced by disorders of nutrition, there is no reason for denying that the hair may also fall from disorder of the vaso-motor nerves; in his practice he had seen but little looking toward a parasitic origin of the disease.

He thought, however, that certain cases of alopecia areata, presenting stubbed hairs over the surface, with more or less itching, certainly strongly suggested a parasitic origin, and he was inclined to recognize such; he referred to trichorhexis nodosa as a variety of alopecia areata, produced by parasitic elements, but gave no proof of the connection between the two.

In regard to the local treatment of alopecia areata, he believed that the many strong applications which had been suggested were all of parasiticidal nature; good results could be gotten by painting the spots with tincture of iodine, rubbing with crude coal oil, washing with a strong solution of bi-chloride of mercury, the oleate of mercury, strong acetic acid, and numberless other remedies, all of which produced a desquamation of the skin. In common alopecia, which was one of the stages considered, he believed that most of the cases were due to the existence of sebor-

rhea; this was often due to the poor nutrition of the general system, but likewise, sometimes the result of microorganisms. In these cases resorcin was of great value, but he believed that the application of tincture of tar was always a valuable adjuvant.

Dr. Bulkley remarked that undoubtedly a very large proportion of the cases of alopecia simplex were due to seborrhea, and the application of a 5 or 6 per cent. solution of resorcin in water and alcohol would often suffice to check the disease; he believed, however, the loss of hair to be due to a faulty nutrition, and in every case he administered phosphates, and also made large use of milk.

In regard to alopecia areata, he was not yet entirely satisfied whether there was also a parasitic variety, as well as a neurotic. In those cases where there were broken and stubbed hairs, he was inclined to believe that a parasite might eventually be found, but he had never been able to discover one with the most minute examination. In those cases of alopecia areata where there were the broken and stubbed hairs around the margin, and sometimes even in the patch, he believed that there was an accompanying trichorexis nodosa, which complicated the disease; these hairs certainly resembled very closely those produced by the trichophyton, and he thought that this was the explanation of many mistakes which had been made in supposing cases of alopecia areata to be of parasitic origin. He did not believe that the occurrence of several cases in one family, afforded any proof of its contagious character, as they could all arise from the patients being under similar circumstances of life.

In regard to the treatment of alopecia areata, he had already strongly recommended the painting of the spots with pure carbolic acid, repeating the application every week or so, when the scaling had come off, and if the surface did not look too red or inflamed; the application does not produce any considerable pain, and the patients never objected to a second application of the same; he believed that the small amount of pain, and the very slight inflammatory action following the application was an argument in favor of the neurotic origin of alopecia areata. He mentioned two cases where for demonstration he had painted a patch on the top of each head, two inches long by one inch wide, with square corners, upon a perfectly bare surface; this produced a very striking appearance, as the hair began to grow after one or two applications, giving a sharply defined rectangular patch of fine hair growing upon an otherwise perfectly smooth surface: this was watched for some time with great interest, both by the patient and himself.

Internally he administered strychnia in phosphoric acid in full doses, and encouraged the use of all kinds of foods containing fats and phosphates.

In regard to the case reported by Dr. Dunn, he thought that it furnished a strong argument in favor of the neurotic origin of alopecia areata, especially the pruritic element, which preceded the occurrence of patches. He mentioned a very similar case in a young man where there was, in conjunction with the very general alopecia areata, intense pruritus, and the occurrence of vesicles in groups, forming an eruption, which was recognized at the New York Dermatological Society as dermatitis herpetiformis. Later there were tumors developing here and there, and after death the patient was found to be the subject of pretty general sarcomatosis; it was believed that all the skin phenomena were but the result of the extension of the sarcomatous process among the nervous structures.

Dr. Ohmann-Dumesnil stated that he had applied carbolic acid in alopecia of the scalp to the extent of even ten square inches at once, and without producing an inordinate amount of pain, or deleterious effects; he had also repeated an application of the same twice a week, without any reason for regretting it. He believed that the pain was pretty severe for a moment, but stated that it very soon ceased. He never hesitated to apply carbolic acid when needed, and found that after the application the hairs which regrew were not found to be lanigo hairs, but those which were well developed. He believed that he could distinguish a parasitic alopecia areata by the presence of a small amount of scaling, and hairs which broke off readily.

SESSION, JUNE 9.

Dr. Breakey, of Ann Arbor, read a paper, entitled, "A Case of Lupus."

Dr. Atkinson, of Baltimore, thought that the extensive notoriety of tuberculin was due more to the public press than to the scientific journals, and that the physicians themselves were greatly influenced by the public in the

matter. The failure to realize what had been promised caused the remedy to lose popularity, but now that the general agitation in regard to the matter had passed over, he believed it to be a time for scientific investigations.

There was no doubt in his mind that tuberculin had a great power over the tubercular process, and results which had been obtained since the excitement were rather encouraging. He thought that the enormous numbers of the microorganisms present in tubercular disease, only gave reason for longer continuance of the treatment until they had quite disappeared from the system, for they are ever ready to develop afresh from those that remain. He believed that in spite of all the apparent failures, we were on the road to discover a specific for tuberculosis, for never before had there been found any agent which exhibited such a power against the tubercle bacillus.

Dr. Duhring agreed with the speaker as to the possibly brilliant future of remedies like tuberculin in lupus although his own experience with tuberculin had been limited, and not successful. He briefly reported the case of a woman of thirty-five, with patches of lupus vulgaris on both cheeks, in the nares, and extending back to the throat; the tubercular infiltration was so disseminated, not only in the corium, but also in the sub-cutaneous tissue, that it was impossible to raise the skin in folds. As it was a case in which little or nothing could be done by local treatment, he inoculated the patient with the culture of erysipelas. The experiment was a failure, no reaction taking place, and he now expects to inoculate her with tuberculin. In ordinary superficial patches of lupus, the disease can be removed by scraping, and recovery often takes place, but when infiltration is deep and extensive, then he believed that it would be desirable to use injections, and he had no doubt that some treatment more or less of the nature of that under discussion would be the treatment of the future. He called attention to the fact that in the reports regarding treatment by tuberculin, the distinction had not always been made between lupus vulgaris and lupus erythematosus, which are two distinct affections.

Dr. Bulkley remarked that he had not joined in the enthusiasm of the time in regard to this treatment, and he had watched but a few cases of lupus treated with tuberculin, and must see and know more of it before he could express anything in regard to its utility. He quite agreed however, with what had been said in regard to the chronic nature of lupus requiring a prolonged treatment, and thought that the mistake had been in discontinuing the use of the remedy too soon. The enormous number of bacilli which may be found in the system under the worst conditions, indicated the difficulty in reaching the disease, for we know that until all are destroyed or nullified, their reproduction can occur.

He instanced the chronic nature of the poison of syphilis, in which the treatment must be prolonged for a great length of time, in order to obtain perfect recovery; even after active symptoms have disappeared, if the treatment is discontinued too soon, we are apt to see one lesion or another come again and again. He thought the same applied to lupus, and was glad to learn that Dr. Breakey intended to continue the treatment, and hoped that he would have it prolonged for a considerable length of time, and he should look forward with interest to the result, which he trusted would surely be reported at the meeting of the Section of the Association next year. In regard to lupus erythematosus, he believed, of course, that tuberculin would have no effect on it, its nature being entirely different from that of lupus vulgaris. During the period when the treatment by tuberculin was strongly advocated, one patient with very general lupus erythematosus, affecting even the hands very severely, was desirous of undergoing the tuberculin treatment. Knowing that this was useless if there were no bacilli, he excised portions of the affected skin, and had them very carefully studied by a skilled microscopist. No bacilli were found, and the case was not thus treated, but since that time it had yielded to phosphorous, given internally in free doses.

Dr. Robt asked whether any member had had any experience with tuberculosidin?

Dr. Ravogli remarked that he had not had personal experience with the use of tuberculin in lupus, as he was alarmed by the reports of Vidal, Besnier and others. He mentioned the case of a gentleman in Cincinnati who had lupus of the nose, and was under treatment in a hospital in Washington, where he took one hundred injections. On returning to Cincinnati the condition was very much worse, and his nose so destroyed that he was obliged to wear a covering continually.

On the other hand, Dr. Kosmer, of Cincinnati, recently showed to the Academy of Medicine a tubercular subject who had been treated with tuberculin. He had patches of lupus on his right cheek and nose, which had been treated locally at various times without results. As his lungs showed points of tubercular infiltration, and bacilli were found in his sputa, injections of tuberculin were given him every two or three days in one to five milligrams. Under this treatment the lupus patches began to improve to such an extent that when he was presented to the Academy, only two superficial scars remained to indicate the site of the former lupus. An examination of the chest showed that the infiltration had diminished a great deal, and bacilli were no longer found in the sputa. These results were obtained in but a few weeks, but we cannot say yet whether there will be any relapse. The speaker therefore agreed with the Chairman that treatment should be continued a long time in this disease, as in syphilis, before we can say that the patient is free from the tubercular bacillus.

Dr. Breakey said that he wanted to show that his experiments were perfectly in accordance with those of Dr. Geddings; the injections with iodine produced no reaction whatever, but he believed that he would have ultimate results from the tuberculin, and he proposed to continue the treatment with the patient if possible.

The Chairman requested Dr. Breakey to give a further report upon the case at the next meeting of the Section next year, as he thought it extremely desirable that matters of this kind should be followed out for a greater length of time.

Dr. Goldenberg, of New York, sent a paper entitled "Chancre of the Finger, with especial reference to Adjoining Adenopathy," which was read.

Dr. Ravogli mentioned a case of hard chancre under the nail of the third finger of the right hand in a medical man with eczema of the fingers. The patient had very extensive maculo-papular eruption all over the body. In this instance there was much general adenopathy, and the epitrochlear gland of that side was enlarged and very hard.

In another case of hard chancre on the second joint of the right thumb, in a saloon keeper, the lesion had the appearance of a large wart, and there was general maculo-papular eruption, with adenopathy; the epitrochlear gland of that side was enlarged and prominent.

Dr. Duhring said that medical men sometimes believed that they had acquired syphilis through their surgical work, when the eruption would prove to be only some simple erythematous disease. He mentioned two cases of the kind where no extra-genital chancre could be found, and the eruption subsequently proved to be innocent.

Dr. Carrier said that the question raised in the paper in regard to whether the epitrochlear or the axillary glands were infected in certain chancre of the fingers, could readily be explained by the topography of the region; when it was situated superficially, one set of the lymphatics would be affected, and manifest the glandular enlargement at the elbow, but when more deeply situated, another set of lymphatics would be involved, and the glandular enlargement would appear in the axilla.

Dr. Bulkley remarked that he had more commonly seen the glandular enlargement at the elbow in cases of chancre of the finger, and mentioned a recent case seen at the New York Hospital. The patient came for the treatment of gonorrhœa, when on later examination he was found to have a maculo-papular eruption. As no chancre could be found in ordinary situations, he examined the entire surface very carefully, and found the left index finger bound up with a piece of plaster. It had been sore for a couple of months, but of course the real character of the sore was not known to the patient. The ulcer involved all the tip of the finger and extended beneath the nail, which was long and protruding; the surface was raw, moist and shiny; there was very great adenopathy felt at the left elbow, and also some in the axilla, but none in the corresponding locations on the right arm. He had seen a very considerable number of chancres on the fingers of physicians, and his impression was that almost always the cubital gland was first enlarged; but he reminded his hearers that glandular enlargement was not necessarily a sign of syphilitic infection, but could occur from any inflammatory or ulcerative lesion of the part. He himself several years ago had abraded the knuckle of the little finger of the left hand. This remained sore for some weeks, refusing to heal, and took on the characteristics very suggestive of chancre. As he was constantly exposed it was feared that this was its real nature, and some cubital and axillary adenopathy seemed to favor this view. But

upon splinting the hand and protecting the sore with cotton, it healed up very promptly without specific treatment. No ulterior results followed.

In reference to the general subject of extra-genital chancre, he remarked that he had full notes of at least one hundred cases which had come under his observation, affecting very different portions of the body, and he was inclined to think that these anomalies and innocent infections were far more common than was generally supposed.

Dr. Lydston believed that in most cases of syphilis the chancre could be detected if sufficient care was exercised; he thought it important to impress upon practitioners that there could be no syphilis without the existence of a chancre; he considered that when the lymphatics were found affected a chancre must be present somewhere. He mentioned the case of a lady who had a bad tooth, for which carbolic acid was applied for cauterization, and it produced an ulceration of the gum. This was thought to be wholly due to the carbolic acid, but infection in some manner had taken place through the same, and syphilis followed, the lesion on the gum being nothing less than an initial chancre. The virus he believed had been received from dental instruments.

Dr. Lydston read a paper upon "Circinate Syphilide, with Report of a Case."

Dr. Duhring remarked that he had met with this form of syphilitic eruption a number of times among people of the lowest class with broken-down constitutions, and especially those addicted or inclined to hard drinking. He believed that the nervous system had a great deal to do with the production of this form of eruption, and called attention to the resemblance of psoriasis to some forms of circinate syphilide, especially on the face and neck, and to the necessity of making an accurate diagnosis between the two.

Dr. Bulkley said that he thought it very unusual to see this form of syphilitic eruption so early in the disease, namely, after four months' infection, and thought that he had never seen one in so early a stage of the disease, although he had naturally seen a considerable number of such cases at later periods of the disease. He believed also that the nervous system had something to do with its production, and spoke particularly of the influence of the abuse of alcohol in bringing on the severe and late lesions of syphilis.

Dr. Ravogli remarked that the division of the symptoms of syphilis into primary, secondary, tertiary and quaternary had been a mistake, giving the impression that the symptoms follow one another in an established manner. He would rather adopt the distinction followed by Virchow, dividing the phenomena into those of the earliest stage and the late stage of syphilis; those early in the disease being characterized by an inflammatory condition, while those later were characterized by infiltrations and new growth. He called attention to the fact that gummata occasionally occurred quite early in the disease, and had been found in the meninges of the brain only one year after infection. Looking at syphilis in this light, he did not wonder at circinate syphilide occasionally occurring early after infection; the eruption is only a nodular form, composed of small points arranged in circular manner. In the instance in question, he believed that seborrhœa was complicated with the syphilis, which aided in producing the thick crusts. He regarded the circinate forms of syphilis, especially when occurring on the palms, as very obstinate. He had found great benefit from the use of baths of corrosive sublimate, one to a thousand, soaking the hands in this solution for some time, even up to an hour every day. In regard to the influence of the nervous system in the production of this eruption, he referred to the studies of Polotebnoff in psoriasis, and thought that if they were correct, the nervous system had very much to do with the disposal of these circular forms of syphilitic eruption.

Dr. Lydston remarked that others had spoken of seeing examples of the circinate syphilis in public institutions, but the case which he presented was the first one of the kind which he himself had met with. He agreed with the speakers in regard to the neurotic element as the cause of the peculiar manifestations which sometimes occur early in syphilis, and commented on the fact alluded to with regard to their appearance in those who had abused the use of alcohol, and had broken-down constitutions.

The Chairman then made a few closing remarks in regard to the work of this branch of the Association. He said that he considered that the members of the Section had great cause to congratulate themselves both upon the most excellent work which had been done in the way of the papers presented, and the discussions thereon, which had in his

judgment quite equalled the same in some of the special societies. There had also been very good attendance at the meetings, in all a total of 102 at all the sessions of the Section, which would average over twenty at each meeting. He urged those present to take an active interest in preparing for the next meeting of the Section in Milwaukee, and thought that under the able Presidency of Dr. Duhring, the meeting promised to be even far more successful than the present one had been.

He then introduced the Chairman for the coming year, Dr. L. A. Duhring, of Philadelphia.

Dr. Duhring said that he wished to endorse what Dr. Bulkley had said in regard to the good work accomplished in the Section; he thought that the papers had been excellent, and the discussions clear and satisfactory. He thought that great gain was had from discussing such topics, and that there was much benefit to be derived from having general practitioners take part in the work of the Sections, as often very practical and valuable suggestions and facts were brought out thereby.

FORTY CASES OF PSORIASIS TREATED WITH ARSENIOUS ACID.

Read before the Section of Dermatology and Syphilography, at the forty-third Annual Meeting of the American Medical Association, held at Detroit, June, 1892.

BY B. MERRILL RICKETTS, M.D.,
OF CINCINNATI, O.

So much has been said about psoriasis and its treatment, especially with arsenic, that I refrain from consuming much of your time.

It was before this Section that I read a paper on the uses of arsenic in May, 1888. I then endeavored to bring out the principal physiological advantages over the other remedies in the treatment of certain skin diseases.

To-day I will confine my remarks to its use in the treatment of forty cases of the various forms of psoriasis. This number constitutes all that I have treated during the last six years, both in private and public practice. With the eight or ten cases that did not come under my immediate care, I have seen about fifty cases from various sections of the country. Of the many remedies used in the treatment for psoriasis, I do not think that there is one that meets so many requirements as arsenic.

So far I have not found a person suffering with the disease, that could not take the remedy; true it was, with a few, taken with great difficulty, but with the proper and persistent management, it could finally be taken with impunity.

I have given as little as $\frac{1}{30}$ grain of arsenious acid daily, on the other hand, I have given as much as forty-eight twentieths or two and four-fifths grains daily, for eighteen successive days. This proves to me that the drug is not so dangerous in the hands of experienced medicators as was at one time believed. It also proved that what is a dose for one may be nothing more than a minimum dose for another. I want it understood right here that I do not use any other preparations of the drug than the following:

R Acid arsenici, ℥i.
Acidi hydrochloric dil., ʒss.
Aqua, ʒiiss. ㉟;

or the Asiatic pills composed of arsenious acid and black pepper in different proportion. The solution gives five grains to the ounce of water, so that every ten drops of the solution contains one-tenth grain of arsenic, which is held in solution by the hydrochloric acid.

I do not advocate the use of Fowler's solution. It is

unreliable in strength, owing, however, to its being an article of commerce and the possibility of having been made for a great length of time and exposed to heat, air or light.

I have found that better results can be had in any course of treatment if that treatment is made as convenient as possible. If the remedy can be made tasteless and put up in shape that it can be carried in the pocket or otherwise convenient, the remedy can be taken more regularly for a greater length of time and with less complaint. Hence the disadvantages in using ointments, pastes, lotions and plasters in the treatment of psoriasis, one of the most annoying and persistent of the skin diseases.

These remedies are vile and disgusting to all classes of patients, and I do not hesitate to say that I would rather have the disease than to submit to their use. These objections have prompted me to abandon all other treatments than the one suggested in this paper, and I feel assured that the result obtained in the few cases I report, proves the efficacy of the treatment prescribed if nothing more. I am of the belief that the patient treated with arsenic has a longer immunity than if treated with any of the other numerous remedies; especially does this seem so in the most aggravated forms and in those of long duration. I have not been disappointed in a single case. In one case (that of a man 28 years of age), having suffered fourteen years, I was compelled to increase the amount of the drug to two and four-fifths grains daily for eighteen days before the scales began to disappear. There was little puffiness of the eyelids, slight diarrhoea and the occasional sensation of nausea. The patches became very red, gradually fading until, there was nothing left but a very slightly perceptible, coppery hue of the affected areas. There was desquamation of the epithelium covering the various cicatrices and finally covering the palms of the hands and soles of the feet. A recent letter from him, states that he never felt so well and that he has been entirely free from the disease for several months with the exception of a spot here and there, all of which disappeared under the influence of the arsenic.

In conjunction with the internal medication, I here applied the ungt. hydrargia album precipitatis in a few of the most aggravated forms, not so much for the good they would do as to satisfy a clamorous patient.

Occasionally we meet a patient who cannot be satisfied unless he is smeared or painted red with some concoction. I firmly believe that the eruption will disappear just as promptly without the local applications as with them. Although these cases under my care have made satisfactory recoveries under the influence of arsenic, I do not doubt that in certain cases other remedies will prove themselves as effectual but not as convenient.

If there is much scaliness upon the face or scalp I think it advisable to apply oils or simpler cerate, that the scales may be kept soft and that itching may be relieved.

TREATMENT OF VARICOSE VEINS BY RESECTION OF THE SAPHENA.—M. Reynier showed a patient before the Medico-Chirurgical Society of Paris who had been suffering severely from varix, treated by resection of the saphena vein. The cure was not complete, but so much relief had been given that the sufferer desired the repetition of the operation on the opposite leg.

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SATURDAY, APRIL 29, 1893.

THE TREATMENT OF INSOMNIA BY SULPHONAL
AND CHLORAL.

A paper by DR. ARTHUR A. BOYER before the Massachusetts Medical Society has been printed in the *Boston Medical and Surgical Journal*, having for its subject the after effects of some of the most commonly used drugs in functional nervous disorders. DR. BOYER believes that there is a strong temptation, in respect of those disorders, to secure striking, rapid and tangible results by medication at the expense of a rigid scrutiny of the after-effects of the drugs employed. With regard to many of the new remedies especially, it is noteworthy that the early reporters of their therapeutic workings publish satisfactory and even startling results without a sequence of untoward or dangerous after-symptoms. The student of therapeutics is impressed with the feeling that these happy results are abnormally uniform concerning many remedies that have been too recently introduced to clinical medicine to be properly understood. Or as DR. BOYER states, "it is not unreasonable to suspect that such reports are based on insufficient data, and that a better acquaintance with these drugs will reveal elements no less dangerous because insidious. DR. BOYER finds many cases in point when examining his experience as to the drug-treatment of insomnia. The drugs for this line of cases that are especially popular at the present time are sulphonal and chloral. There is a large number of patients, however, who continue unrelieved by these medicines, and who find their way into the hands of specialists seeking treatment for sleeplessness. There are two groups of these patients, first, those who are in the habit of taking chloral or sulphonal and yet cannot sleep; and, second, those who sleep when they take the drugs but consult you for extreme nervousness. These patients have certain symptoms in common. The facial expression is generally dull and smileless; the countenance hard-set and fixed,

with the eyes heavy, often congested; a dusky pallor of the complexion, the whole being a suggestion of despair. The face seldom relaxes into a smile and the patient goes about like one in a trance, and talks in an automatic manner. Sulphonal inclines more to produce the despairing aspect, while chloral has more of excitement and irritability. In some cases tremor is observed. Chloral sometimes disturbs the related movements of the ocular muscles. Daily contact with patients has led DR. BOYER to the opinion that the suffering induced by the taking of these drugs may equal that of the original disorder. He has seen the withdrawal of the drugs serve the double purpose of elucidating the diagnostic problem and frequently give much relief to the sufferer.

MEDICAL EDITORS' ASSOCIATION.

In these days of concentrated effort and combinations of societies and journals, it seems strange that medical editors should have permitted this association to slumber along almost oblivious of the power which it possessed. For ten years this society has been only known by its making-up annals at the American Medical Association meetings, voting in a new list of officers, taking an indifferent meal, principally not for its cost, then falling asleep for another twelve months. The enthusiasm of some of the younger members, was generally chilled to zero after the first meeting and seldom rose again. Efforts to read papers sank into indifference, compared with the dinner, and even this often turned to a mutual admiration gathering.

But like the giant of the fable there are unmistakable signs of awakening, to a new life, that will give new form and direction to the sleeping powers of the medical press. There are over a hundred and twenty medical journals in the regular profession, going out weekly monthly and quarterly to the sixty or seventy thousand physicians in this country. If all these journals were organized, and their efforts concentrated they would be a great power in medical science. It is this failure of organization that gives discordant tone, and divided interests to the medical press. While many journals have rival interests, and local contests, they should all be united on general principles, and join in efforts for the common good of each. The officers of this association have resolved to make a great effort at the coming annual meeting in Milwaukee to perfect the organization and have every medical journal in the United States represented. Also to create a renewed interest in medical journalism, making every journal and its editors feel that its annual meetings are of personal value and importance to each one.

To this end ERNEST HART, the famous editor of the *British Medical Journal* has been invited to deliver an address which will be memorable to the

association in many ways. DR. J. STANLEY HALL, president of Clark University at Worcester, Mass., an editor of the *Journal on Psychology*, and at the head of the most complete laboratory for psychological research in America. This will no doubt cover some part of this most fascinating field of psychology.

The third address will be by HON. CLARK BELL of New York, editor of the *Medico-Legal Journal*, and president of the International Medico-Legal Congress. His topic will no doubt be on some question of legal responsibility of editorial work and management. These three addresses by practical men and great leaders in their fields of work cannot fail to be of exceeding interest to every medical editor in the country.

Several short papers are promised at the business meeting by practical men bearing on the minor phases of journalism. An earnest appeal is made to every journal to have a representative at this meeting, and assist in rousing up, and developing the varied interests which can be made so great a power for good in the profession.

The profession are calling for a better class of journals, and everywhere efforts are being made to supply this demand. Trade journals and irregulars of every description are springing up, bringing means and methods that are antagonistic to science and true journalism. The only relief for which, is from a closer organization and more thorough union of work and interests, among the regular journals. The Editors' Association should represent every regular medical journal, and every editor should feel that an active membership in this society is an essential part of his successful work. The annual meetings should bring new strength and new inspiration to each member, thus not only raising the tone of his journal, but giving breadth and power to its influence. Thorough organization would enable journals to successfully break up many of the abuses which are difficult to correct alone. It would also, by the concentration of effort in certain directions, bring about reforms that would be difficult in any other way. Only through such a union can the strength of our journals be made apparent.

The officers of this association appeal to every medical editor to be represented at the coming meeting, and join in a united effort to develop and give greater power to the medical press of America.

PROFESSOR VIRCHOW IN ENGLAND.

The recent visit of the veteran scientist, PROFESSOR RUDOLPH VIRCHOW, to Great Britain, was an occasion which must be reckoned among the memorable events in the annals of science, and particularly in the annals of medicine. The occasion of this visit of the German *savant* was the delivery of the Croon-

ian Lecture before the Royal Society, March 16, 1893. The subject chosen for the celebrated address was the "Position of Pathology among the Biological studies."

The lecturer read the history of pathology from the downfall of the humoral pathology, to the present time. In this march of scientific progress, two nations have ever been foremost in their contributors—Germany and England. The foundations of the structure upon which scientific medicine has been built, were laid by VESALIUS and PARACELSUS. Especial stress was laid upon the labors of HARVEY and of GLISSON by the orator. In terms of brilliant praise were the studies of these pioneers reviewed by PROFESSOR VIRCHOW, and especially was the work of GLISSON lauded; for, said the lecturer, this pioneer had sunk into unmerited oblivion. With the modesty so much a charming characteristic of Virchow, he spoke of his own discoveries which led to the enunciation of his ever famous dictum.

Especially significant, in coming from the lips of this representative German scientist, are the hearty expressions of fraternal feeling from the German to the English investigators. In his Croonian oration, and in his subsequent speech at Cambridge, on the occasion of his assuming the honorary degree of Doctor of Science, PROFESSOR VIRCHOW dwelt with strong emphasis upon the brotherhood of the two nations, and upon the community of their labors, both political and scientific. Well may the British medical profession feel the pride of such expressions! "Men of a common race, of one blood, and of a common aspiration—German and English—should always go hand in hand in the generous emulation and combination for the highest purposes of thought and life." What the development of such a spirit may mean in our science is hard to foretell, but that it must be followed by most desirable consequences is evident. May the festivities which have marked the sojourn of Virchow in England be the signal for a union of the scientific energies of the English and German speaking nations, such as the world has never seen! and may this union be but the introduction to that millenium in biological sciences when all men of all nations will labor "hand in hand" in the solution of the mysteries still unsolved! What has been accomplished in biology in three or four centuries is clearly outlined in the Croonian lecture. What remains to be accomplished is indicated with equal clearness. It must be that the orator, foreseeing with his clear judgment the increasing difficulties as the goal of biological inquiry is neared, realized the absolute necessity of a rallying of scientific forces about a common standard, and with a common aim.

The scientific physician the world over must echo the sentiment of SIR ANDREW CLARK, who, in

his toast to the honored guest, prayed that PROFESSOR VIRCHOW might long live to illuminate and to inspire the profession to which he belonged.

SOLID CHLOROFORMS.

The *Chemist and Druggist* announces that an important discovery in medical chemistry has recently been made by PROFESSOR ANSCHUTZ, of Bonn. After many trials, that chemist has succeeded in combining chloroform with the anhydrides of salicylic and cresotinic acids so as to produce solid and portable substances, from which pure chloroform can readily be derived. These solid chloroforms are simple mixtures and only about twenty-four hours are necessary for the process of crystallization to take place, which process is a means of essential purification since any impurities that exist are left out as the crystals gradually separate. These compounds are not decomposed by light, as is the case with pure unalcoholized chloroform, and therefore the new compounds will probably play an important part in the anæsthesia of the future. The readiness with which they can be produced is another signal advantage in their favor. The questions of storage and transportation, as applied to the new drugs, will probably receive favorable solution, but the elements of time and trial must be awaited and observed.

ANTIPYRIN IN EPISTAXIS.

DR. GUENOT, according to the *Press and Circular*, has tested the utility of antipyrin in several severe cases of epistaxis in children. When the child is old and docile enough to make insufflations of a solution of the drug, he has found that plan to work satisfactorily. A ten per cent. solution snuffed up from the palm of the hand has usually been efficient to control the loss of blood very promptly. In younger children, the same solution was injected into the nostrils through a small syringe, precaution being taken to see that the patient's mouth is kept open during the procedure. DR. WEST, of Boston, has reported successful cases of a like nature, but he has applied the antipyrin in solution on a pledget of lint, or has used the drug in a fine powder in cases of unusual severity. In no instance did the treatment fail to stop the epistaxis. The patient is, by this method, saved the tarry clots that are formed when ferruginous styptics are used.

"PEACH FEVER."

In the *Maryland Medical Journal*, February 18, appears an article on the above proposed new term by DR. C. L. G. ANDERSON, of Hagerstown. Those who work in the peach-canning industry are liable to an irritation of the integument and respiratory tract, with some systemic *malaise* and elevation of

temperature of one or two degrees. The author has known of one case where the illness was so great that the patient, a young woman, was compelled to quit her employment as a worker among peaches. The source of irritation is believed to be some germ having its habitat in the "fuzz" of the fruit. All varieties of fruit are not alike irritative, first all the workers are not alike susceptible. "There are pachyderms whom all this does not affect, but neurotic and tender-skinned young girls suffer considerably." The state of the weather has something to do with the production of the "fever;" on cool and windy days or after a rainfall the irritating influence given off by the peach is scarcely noticed. But high temperature with high relative humidity favor the production of the trouble. There is no discoverable element of contagiousness in the disorder. The specific microbe, if any exist, has not been isolated.

ST. PAUL, MINN., April 9, 1893.

The fourth annual session of the Association of American Medical Colleges will occur at the Pfister Hotel, Milwaukee, Wis., at 3 P.M., Wednesday, June 7, 1893.

The following amendment to the By-Laws will be suggested, to wit: Granting associate membership of one delegate to each recognized school of post-graduate instruction in the United States.

Second. Granting associate membership of one delegate from each State board of medical examiners in the United States.

Third. By dividing membership into three classes, to wit: active, associate and honorary.

PAPERS.

Methods of the Manual Training in Medical Instruction. By E. L. Holmes, M.D., LL.D., Chicago, Ill. Discussion opened by Victor C. Vaughn, A.M., M.D., Ann Arbor, Mich. To what Extent Should the Specialties be Taught in Regular Course? By Dudley S. Reynolds, A.M., M.D., Louisville, Ky. Discussion opened by A. VandeVere, Albany, N. Y.

Report of Committee on a system of uniform college certificates. By Prof. Victor C. Vaughn, Bayard Holmes and Perry H. Millard.

Report on a system of laboratory book-keeping. By Bayard Holmes, B.S., M.D., Chicago, Ill.

PERRY H. MILLARD, Sec.

ELEVENTH INTERNATIONAL MEDICAL CONGRESS (Rome, Italy, Sept. 24-Oct. 1, 1893).—American National Committee: W. T. Briggs, Nashville, Tenn.; H. P. Bowditch, Boston, Mass.; S. C. Busey, Washington, D. C.; C. Cushing, San Francisco, Cal.; N. S. Davis, Chicago, Ill.; Norman W. Kingsley, D.D.C., New York; Wm. Osler, Baltimore, Md.; Wm. Pepper, Philadelphia, Pa.; F. Peyre Porcher, Charleston, S. C.; Charles A. L. Reed, Cincinnati, O.; D. B. St. John Roosa, New York; Alex. J. C. Skene, Brooklyn, N. Y.; James Stewart, Montreal, Can.

A. JACOBI, 110 W. 34th St., New York, Chairman.

CIRCULAR:

NEW YORK, April 1, 1893.

The North German Lloyd, 2 Bowling Green, N. Y., offers

a reduction of 25 per cent. to the medical men going to and coming from the Eleventh International Medical Congress, on Steamer Werra, which is to sail from New York on August 5 and September 9, and on steamer Fulda, on August 19. Both these steamers sail to Genoa. The same reduction will be made for the return trips in October and November, on the same steamers, and for the Company's Saturday (off Bremen, Sunday off Southampton), steamers.

The Hamburg-American Packet Co., 37 Broadway, N. Y., 125 La Salle Street, Chicago, offers a reduction of 25 per cent., both out and return, for all its steamers during the year 1893.

The Compagnie Générale Transatlantique, 3 Bowling Green, N. Y., offers the rates which are allowed French officers, that is, \$63.50 for an \$80 accommodation and \$91.50 for a \$120 accommodation.

Five other lines decline to make any satisfactory arrangements.

THE RUSH MONUMENT.—Members of the American Medical Association who have not already subscribed to this National medical undertaking, are urgently requested to come to the meeting at Milwaukee, in June, prepared to pay their contributions to the treasurer, Dr. DeWitt C. Patterson, of the District of Columbia, or to forward the amount before the meeting to his address, 919 I Street, N. W., Washington, D. C. The medical profession is again reminded of the peculiar fitness of Benjamin Rush to represent, not only the general practitioner, but the civil and military surgeon, the sanitarian, alienist, and medical philanthropist. The projected monument will be not merely a memorial of the distinguished individual whose name it will bear, "the greatest physician this country has ever produced," but will be symbolical of medicine in all its aspects and in all its relations to the community and the Nation.

ARE ASYLUM PHYSICIANS PARTY PENSIONERS?—The notion that public officers are the pensioners of a party, not the servants of the whole people, seems to die hard. The prospect appears to be that the officers of all the hospitals for the insane of the State of Illinois will be turned out to make room for members of the political party which, after an outing of thirty-five years, has once more gained the upper hand. It is true that the present Governor, in his canvass, made charges of extravagance and mismanagement against those institutions, but we presume that no one will seriously maintain that a lack of confidence in their management is the only, or even the principal reason for so sweeping a change. It is also true that, so far as one wrong can justify another, the course of the republican party, during the long period of its dominance in the State, has afforded an excuse for such a course. Only republicans have been appointed on the board of trustees, and we understand that the officers of the hospitals have been regularly assessed a portion of their salaries for the campaign funds. It is not long since the superintendent of the hospital at Anna was driven out of office with little or no pretense or concealment of the fact that the ground of his dismissal was his luke warmth in partisanship, and, from all that we can learn, his successor has not erred in that direction, although his attainments as an alienist have not, we believe, even yet, earned him any very wide celebrity.

We do not suppose that if a member of Governor Altgeld's family were to become insane, and he were looking for a suitable private hospital, it would ever occur to him to enquire into the physician's views on the tariff. We have

no doubt that the multitudes of those who will applaud his action in this matter, or take it as a matter of course, employ, by choice, physicians of a different political faith from their own in their families, and would laugh at the idea that a man's political views have anything to do with his professional competency. It is the view that the salaries of these officers are not, primarily, the reasonable compensation for honest and faithful discharge of their duties, but the reward of activity in an entirely different field, that allows people to view with approval or indifference such changes, entirely without regard to the merits either of those who are turned out or those who are put in.

The pernicious effect of such a policy is so plain that we should feel as if we were insulting the intelligence of our readers by arguing the question. Men whose aspirations are for professional eminence and usefulness will hesitate about accepting positions in which such qualities count for nothing. Even if competent men are secured, they are sure, in a State in which parties are pretty evenly balanced, under such a system, to be turned out before they have acquired the experience that will enable them to do their best work. The inevitable tendency, under such conditions, is to the filling of the offices by men whose only object is to make money out of them, and who, knowing that the time is short, will "make hay while the sun shines."

We have no doubt that, in time, the mischief of treating the funds provided for the relief of the unfortunate as plunder will become so plain that it will be no longer possible in a government like ours. But we fear that a good many object lessons will be needed first, and in the meantime the insane must suffer. We shall be as much surprised as gratified if the medical profession of Illinois, without distinction of party, shall denounce the iniquity as it deserves. In the meantime, we believe it is the right and the duty of the American Medico-Psychological Association to scan critically the qualifications of the men who profit by the misfortunes of its honored members, should they apply for admission.—Editorial, *American Journal of Insanity*, April, 1893.

DOMESTIC CORRESPONDENCE.

Citric Acid the Important Constituent of Cancroin.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Sir:—In your able review of Adamkiewicz' recent monograph on cancer I am pleased to note an apparent confirmation of views advanced by me more than ten years ago. In a communication to an Eastern medical journal I reported two operations upon malignant tumors of the face, in which metastases and recurrence were apparently prevented by local hypodermatic injections of a saturated solution of citric acid. The impossibility of including within the incisions all of the *infected* territory, without trenching upon important structures, also suggested the employment of the acid as an adjunct to the scalpel. As a result, the *envolving* cells, which were then believed to be the *fons et origo* of metastatic foci, were destroyed, the tumors atrophied, and were later destroyed to save time. No recurrence within six years.

More recently, December, 1890, after a cancerous mamma had been extirpated the indurated and persistent wound was effectively treated in a similar way, and at the time of her death from peritoneal (mental?) cancer sixteen months later, presented a normal cicatrix.

There is an undoubted antagonism between this salt and cancer cells, and hence the presumption that citric acid is the potential agent in "cancroin." Furthermore, it is harmless and would seem to merit separate investigation.

Note.—Injections of the acid into the substance of an immense colloid carcinoma, near the termination of the case, caused disintegration of portions of the tumor.

C. N. FENN, A.M., M.D.

San Diego, Cal.

FOREIGN CORRESPONDENCE.

LETTER FROM BERLIN.

Koch Institute for Infectious Diseases.

Of the many institutions established in Berlin for the advance of medical learning and research none is of greater importance than the Koch Institute for Infectious Diseases. Through the liberality of the Prussian government, this institution began its career on the 17th of August, 1891, and since then considerable important work has gone from its doors. The institute consists of two departments, the scientific department—a building of laboratories and a hospital. The scientific department occupies a large triangular building bordering on Charité, Unterbaum and Schumann streets. This is a building formerly utilized for dwelling purposes and which has been thoroughly rearranged for laboratory uses. In the cellar are janitor and servant apartments besides stalls arranged for the stabling of animals. The first story contains the important rooms of the scientific department, laboratories for the director of the institute and his assistants. On the second floor are found the laboratories of the hospital director micro-photographic rooms, other laboratories and a library. The laboratories are thoroughly equipped with all necessary appliances. The hospital lying opposite the main building of the Charité is arranged in the form of pavilions, seven in number. Each pavilion contains a long ward, a reception room, kitchen, pantry and lavatory. In all, the hospital contains 108 beds, sixty for males, thirty-six for females and twelve for children. The pavilions are built according to one of three types; the first form contains one ward of eighteen beds; the second, one ward of fourteen beds and two separate rooms, each containing two beds; in the third form the building is divided into exactly two parts, each ward having six beds. By this arrangement all forms of infectious diseases can be entirely isolated. The pavilions are all well built and thoroughly protected against wind and weather; their interior is of such a nature that each part with its contents can be completely disinfected. Disinfection is accomplished by means of a hot water vapor apparatus constructed according to the most recent improvements. On the hospital grounds there is also an executive building with lecture hall, and an autopsy room. The Institute for Infectious Diseases has for its object the study of infectious diseases and the solving of the many problems which these studies may give rise to; investigations are carried on into the life history of bacteria regarding the sources and modes of infection and the relation of organisms to the causation of disease. With this object in view examinations are made not only with materials obtained from the institute, but also with substances such as earth, water, derived directly from the source of infection. At the head of the institute stands Robert Koch, with Brieger as director of the hospital, and Pfeiffer director of the scientific department. Among the other investigators are Ehrlich, Behring, Trosch, Tebruschky, Kossel, Beck, Kitasato, Wasserman and assistants, twenty-five in all. No teaching is allowed at the institute and only advanced workers permitted in the laboratories. The post-mortem examinations are conducted by Koch himself, and each assistant given some work, which he is expected to complete. At weekly conferences, held under Koch's direction,

matters under investigation are discussed and new work bearing on bacteriological subjects reviewed. Considerable important work has already gone forth from the institute, such as Behring's "Blood-serum Therapeutics" in diphtheria and tetanus, Brieger, Kitasato and Wasserman's various papers on immunity, Ehrlich on hereditary immunity; immunity with abrin and ricin; Pfeiffer, the discovery of the influenza bacillus.

DR. JULIUS FRIEDENWALD.

Berlin, April 9, 1893.

BOOK REVIEWS.

THE HYGIENE OF THE SICK ROOM. A book for nurses and others, being a brief consideration of Asepsis, Antisepsis, Disinfection, Bacteriology, Immunity, Heating and Ventilation, and kindred subjects, for the use of nurses and other intelligent women. By WILLIAM BUCKINGHAM CANNFIELD, A.M., M.D., Lecturer on Clinical Medicine and Chief of Chest Clinic, University of Maryland, etc., Baltimore. Philadelphia. P. Blakiston, Son & Co., 1892. Pp. 247.

The material for this manual is derived from a series of lectures delivered at the University of Maryland Training School for Nurses. The principle idea of the author seems to be to show the relation of bacteria to disease and how to prevent sickness by antagonizing its causes. He offers a concise and comprehensive explanation of bacteriology in language so simple that any intelligent person can understand it. He treats of contagion, infection and disinfection, and gives rules for making and using disinfectants published by the American Public Health Association.

The chapter on diphtheria is one of the best in the book. The wider the dissemination of this kind of information, the better for the public. A short description is given of the infectious diseases, and interspersed are helpful hints for nurses. The chapter on the bacteria of surgical diseases, like a considerable portion of the rest of the book, seems to be addressed as much to the doctor as to the nurse. All the details of antiseptic preparations for operations are dealt with at length.

If the simple directions for the prevention of ophthalmia neonatorum were generally observed, probably more than 20 per cent. of blindness could be prevented. What lifelong misfortunes are suffered through ignorance and neglect! We would be blessed with healthier and wealthier homes and children if mothers would read and heed the likes of this little book.

ATLAS OF CLINICAL MEDICINE. By BYRON BRAMWELL, M.D., Assistant Physician to the Edinburgh Royal Infirmary, etc. Volume 2, part 1. Edinburgh: T. & A. Constable.

The contents of part 2 are Cases Illustrative of Alterations in the Field of Vision (continued), Syphilis, Cases of Friedrich's Ataxia with main-en-griffe, Asiatic Cholera.

There are numerous well executed plates, illustrative of the text. A high standard is maintained throughout.

AN INTRODUCTION TO THE STUDY OF DISEASES OF THE SKIN. By P. H. PYE SMITH, M.D., F.R.S., Fellow of the Royal College of Physicians, and Physician to Guy's Hospital. Cloth; 8 vo.; pp. 408. Lea Bros. & Co., Philadelphia. 1893.

This manual is well executed typographically, admirably arranged, and will take its place with other modern manuals as a worthy companion.

DISEASES OF THE SKIN: a manual for students and practitioners. By CHARLES C. RANSOM, M.D., Asst. Dermatologist at the Vanderbilt Clinic, N. Y. Cloth. 1p. 201. Lea Bros. & Co., Philadelphia. 1893.

This little book belongs to the Student's Quiz Series, issued by the publishers and is on a level with the other books of the series published by this firm.

ELEMENTARY PHYSIOLOGY FOR STUDENTS. By ALFRED T. SCHOFIELD, M.D., M.R.C.S. Cloth. Pp. 372. Lea Bros. & Co., Philadelphia. 1892.

The constant recurring changes in the Biological Department of Medicine make text books obsolete so rapidly that the ink is scarcely dry on their pages until they are out of date; so that any new text book on physiology, elementary or otherwise, is sure to be welcome for it will contain much that is fresh from the laboratory and hitherto unpublished. The book is well illustrated, logically arranged, and its statements are made with clearness.

CHOLERA, ITS PROTEAN ASPECTS AND ITS MANAGEMENT. By G. ARCHIE STOCKWELL, M.D., F.Z.S. Member New Sydenham Society, London. Two Vols. Paper. Pp. 306. Geo. S. Davis, Detroit, Mich., 1893.

Owing to the vast literature on cholera, the multiplication of books on this disease, until new discoveries shall give additional light on this subject would seem to be an evil. The book in question is well written from the standpoint of one who has seen much of the disease. He favors blisters applied over the upper portion of the pneumogastric nerve in all cases.

NECROLOGY.

William P. Seymour, M.D.

The death of Dr. William Pierce Seymour, of Troy, occurred on the 7th inst., in his seventieth year. He had formerly held professorships in the Castleton, Berkshire and Albany Medical Colleges, and had been the health officer of Troy before and during the epidemic of cholera in 1854. He was the author of several articles on obstetrical and gynecological subjects. He was one of the charter-members of the Association of New York State. He first joined the American Association in 1877. He was an enthusiast in his profession.

DR. EDWARD HOUGHTON JAMES, of New York City, died March 12, in his seventy-third year by disease of the heart. He was an official of the City Health Department since 1866, filling for the greater part of the time the important berth of assistant sanitary superintendent. He was secretary of the Academy of Medicine for several terms, professor of hygiene in the Woman's Medical College and medical officer to North Brother Island Hospitals. He became a member of American Medical Association in 1866. He, with Dr. Elisha Harris and a few other health officials, was among the prime movers in the early history of the American Public Health Association, Dr. James being secretary of the meeting of organization held in New York City, in April, 1872. He was deeply versed in the questions of tenement house reform in our cities, and the management of infectious diseases among crowded communities. He was a fine musician and one of the most genial of men. His final illness is believed to have been hastened to an untimely rapid termination by an attack of influenza.

INTERNATIONAL MEDICAL CONGRESS IN ROME.—In order to enhance success, the Central Committee have communicated with all the European railways and steamship companies to obtain more favorable terms for the visitors. The French Government have promised to reduce their railway fares 50 per cent. The North German Lloyd will make special arrangements later. The Spanish companies have decided to reduce them 30 per cent. In Italy the visitors will have every opportunity afforded them of visiting all the principal towns by circular tours, both by land and sea. Rome possesses a large number of hotels of first and second class, which the Executive Committee think will meet the desires of the most economical. Ladies will be eligible for membership.

SELECTIONS.

THE POST-GRADUATE COURSE.—In these days of free education, primary and secondary education, when we hear so much of the foundation of new universities, it is well to be reminded, as we have been by Dr. Edward Everett Hall, of the education and training given by the world. He says in effect, that whatever the university may do, "the student has to carry forward his training in the larger college of the world." Comparing the education of the world with that of the college or university, he continues: "In that larger college man has to be his own president, fellow, professor, instructor. The world gives the diplomas, the rewards, the warnings, and the punishments, but the man himself has to be his own director. Whether he will go to chapel or not; whether he will breakfast at seven or eleven; whether he will read in the morning or in the evening; all this is directed in the future for you by no coach, no calendar, no faculty, no officer, but his own determination." The training of the world as it applies to medicine is often a very rough one, and it is well to bear this in mind even in student days. There can be no question in our mind as to the value of university training; that is to say, when the true university idea is carried out. The aim of university life is not pure information, but formation; and when in university life there is a broadening spirit this cannot fail to knit the mental fibre of the man, and to fit him for the subsequent struggle when, after taking a degree, the university doors are closed, and the stern battle of life commences. Competition in public school life and in university life is healthful, though it is true that those who have won prizes at our public schools and at our universities have not subsequently distinguished themselves, and have been beaten by men who at college have been looked upon as failures. Success in life, and particularly in medical life, depends upon many factors. Perseverance and tact are two essentials for success in medical life. University training ought to be rather favorable to the acquisition of these attributes of success, though we know by experience that they are not always secured thereby. The university graduate commences life with certain advantages; in a word, he has a start of some thousand yards over the non-graduate, and if he can keep up the pace he will reach the goal first, and that is just the question—whether he can keep up the pace. It cannot be disputed, then, that university training is worth securing, and we must thoroughly sympathize with the aspirations of those towns, which seek for university colleges, and for the midlands, which demanded a university.—*Provincial Medical Journal*.

ON SECONDARY NEURO-FIBROMA (*Centralblatt für Chirurgie*, February 4, 1893).—Dr. Garré, in a work on the above, emphasizes the following conclusions about this particular morbid growth: 1. By Weigert's method we succeed in examining small fibromata to find the residua of nerve fibres, and are enabled to demonstrate many small molluscous swellings in the palms of the hands and soles of the feet, parts previously considered to be immune from that disease. 2. Among the neuro-fibro-mata, the smaller ones given off as swellings of the minuter nerve-branches, are almost completely without the perineurium, whilst those larger ones, on the cutaneous nerve cords, are not so. 3. In the neuro-sarcoma of the sciatic nerve, the principle feature is the existence of spindle cells in the much connective tissue forming the matrix or ground work, and, besides these, the swelling contains, in addition to regular lymph spaces, irregular glandular tissue, whose spaces are lined with very fine cubical, and in some cases, ciliated epithelium.

HOBBIES FOR MEDICAL MEN.—Every man should have a "hobby," and medical men should by no means exclude themselves from the rule. "Hobbies" are useful in many ways, and the faculty they have of breaking the monotony of the daily routine of life and occupation raises them to a high position of usefulness in the ordinary concerns of human existence. But of course they have their drawbacks, like everything else, and every one who has adopted a hobby knows full well that he is perforce compelled to guard against riding it too hard. In some cases undoubtedly the hobby may come to usurp a position to which expediency, at all events, would by no means relegate it, and then the time comes when steps must be taken to act in accordance with the dictates of common sense and sound judgment. The general practitioner, however, in the country, of most medical men, has the best opportunity of following some congenial hobby, and his chances in this respect are well enumerated in a recent paper by Mr. Alfred Freer. In hunting counties, as he truly says, the medical man who has sporting proclivities may with advantage in several ways contrive now and then to find a patient somewhere in the neighborhood of the "meet." Thus, by combining business with pleasure, he will come in handy should any casualties occur in the field. Shooting is not to be recommended as an amusement; it has a tendency to entice a general practitioner from his practice for too many hours at a time. Fishing has the same objection. Then there is the keeping of pet animals. Speaking for himself, Mr. Freer never likes to be long without a tame raven, magpie, or jackdaw to strut about the garden and premises. These, no doubt, afford amusement in their way, but it is doubtful whether in the strict sense of the term the contemplation of either or all of these specimens of the feathered tribe would afford that amount of relaxation to the mind of which a hobby must be productive in order to be useful. Of course, by making a special study of these animals it might be possible to learn something of their special modes of communicating with each other, and thus gather endless amusement from their conversation. Again, we are advised that dogs and fowls as pets, are not to be recommended to general practitioners who live in towns. This is a sound piece of advice, which, we imagine, would apply with greater force to the general public than to members of the medical profession. The objection to these animals is the nuisance they create by their nocturnal and early matutinal noises. Coming to indoor amusements, it is pointed out that the game of billiards has for some its fascination, but the drawback to it is that it sometimes leads to prolonged absences from home. Whist is next well spoken of, but the palm is given to chess, which has always the greatest charm; moreover, it possesses "the advantage of being free from objection on the ground of stakes." There is no doubt that the great barrier to the adoption of the useful hobby by many medical men is the want of time to devote to it. Without moments, strictly speaking, of leisure in which to enjoy himself, no busy man can derive much profit from any amusement or occupation apart from his work. But while this is the case, he should at the same time never forget that, as far as possible, he should try to find time for a "hobby" and follow it with sufficient assiduity for the benefit which he is certain to derive from it.—*Medical Press*.

BROMIDISM may be prevented, Féré claims, by an intestinal antiseptic being combined with the Bromide Salt as in the following:

R. Potassii Bromid., 5ss
Beta Naphthol, ʒj
Sodii Salicylate, ʒss.

for each dose, which is considered curative as well as preventive.

CHANGES IN THE ENDOMETRIUM IN FIBRO-MYOMA OF THE UTERUS.—Semb (*Archiv für Gynäkologie*, Band xliii, Heft 2) arrives at the following conclusions, based on an examination of twenty-five specimens of fibroid uterus:

1. In the majority of cases of fibroid uterus the endometrium is simply hypertrophied, showing no evidences of inflammatory changes. This hypertrophy may affect both the glands and the stroma; sometimes it is entirely confined to the glands.

2. Secondary changes may occur in the endometrium, due to the pressure of the tumor, or to inflammation in and around the uterus, in consequence of which hypertrophy may be prevented. The mucosa covering submucous fibromyomata uniformly undergoes atrophy as the result of continued pressure.

Two theories have been proposed to account for the frequent coexistence of hyperplastic endometritis with fibromyoma—that of V. Campe and Wyder, in which the hypertrophy of the endometrium is referred to increased congestion caused by the presence of the tumor, and Utter's theory that both conditions are due to a common external irritation, which produces at once hypertrophy of the mucous lining of the uterine cavity and development of the fibroid tumor. The writer favors the latter view, because there appears to be no relation between the degree of hypertrophy of the endometrium and the size of the tumor.

The hæmorrhage accompanying uterine fibroids, he believes, is not necessarily due to the hyperplastic endometritis, since it may be quite as profuse when the mucosa is really atrophied. It is due to several factors—vascular hyperplasia, enlargement of the uterine cavity, the pressure of the tumor upon the uterine veins, accompanying endometritis, etc. From a scientific standpoint, curettage is not to be recommended as a routine practice. Before thoroughly scraping out the uterine cavity, fragments of tissue should be removed for microscopical examination, in order to decide whether the endometrium is in a condition of hypertrophy or atrophy.

It has been stated that the hypertrophy of the endometrium accompanying fibroid tumors predisposes to the development of carcinoma—in fact, Martin has advanced this as an argument for hysterectomy. The writer admits that cancerous degeneration of the hypertrophied mucosa may occur, but it is extremely rare, since he noted only one case in his twenty-five, and Schmal and Wyder found none in thirty-eight specimens which they examined. Carcinoma is no more likely to develop in connection with fibroids, he concludes, than in any chronic nutritive disturbance of a mucous membrane. Practically, however, obstinate hæmorrhages in a case of uterine fibro-myoma should direct the attention of the gynecologist to the possibility of carcinomatous degeneration, and lead him to consider whether total extirpation may not be preferable in the given case to supra-pubic amputation of the uterus.—*Amer. Jour. of the Med. Sciences*.

DISTINCTION BETWEEN SOLUBLE AND ORGANIZED FERMENTS.—The addition of one per cent. of sodium fluoride immediately and permanently arrests the fermentations caused by organized ferments without interfering with the fermentations produced by soluble ferments. M. Arthus and A. Huber, in examining the action of sodium fluoride upon different fermentations, found that the process of decay, the ammoniacal fermentation of the urine and the alcoholic fermentation of sugar were prevented by the above chemical while the action of saliva, invertin, emulsin, pepsin and pancreatin were not interfered with. In the study of unknown fermentations, the use of sodium fluoride will give important information in deciding the cause of the fermentation.—(*Arch. d. Physiol.*) *Pharm. Centralhalle*.

PIROTOXINE IN THE NIGHT SWEATS OF PHTHISIS.—Dr. D'Amore has published his experience with picrotoxine and atropine in the night sweats of phthisis. He gives the picrotoxine in granules containing 1-160 of a grain each. The author reports forty-five cases thus treated. In fifteen advanced cases he gave without success two pills of atropine containing 1-65 of a grain each daily; in these cases, two to four granules of picrotoxine, continued for several days, relieved the condition very much. In twenty cases, with less pronounced lesions, atropine did well in some and failed in others; but picrotoxine, used for several days, checked the sweating completely. Finally, in ten early cases, the results were equally good from the use of either drug. The writer explains these differences by the cause of the sweating in the several stages of the disorder. In the early stages much of the sweating is due to the action of the secretory nerves, and these are controlled by atropine; later, the sweating is due more to paralysis of the vaso-motors, and as atropine does not act upon these it loses its power, while picrotoxine, which does not act upon the vaso-motor system, retains its value in the advanced stage. —*Les Nouveaux Remèdes.*

THE PATHOLOGY OF THE ENDOMETRIUM.—Uter (*Zeitschrift für Geburtshilfe und Gynäkologie*, Band xxv, Heft 2) has made an exhaustive study of the condition of the uterine mucosa in abortion, gonorrhœa, uterine fibroids, etc. He finds that the hypertrophy observed in fibroid uteri is mostly of the glandular type. In one case in which the hæmorrhage was unusually profuse, an examination of the uterus showed that there was general hypertrophy of the interstitial tissue without marked vascular hyperplasia, leading to the inference that the bleeding was probably of the nature of parenchymatous oozing. He thinks that the hypertrophy of the endometrium is the initial change, the fibro-myoma developing secondarily—contrary to the view of Ehrendorfer—which is proved by the fact that if the patient is carefully examined when menorrhagia first appears, no enlargement of the corpus uteri may be noted, but after a certain interval it will sometimes be found that a fibroid tumor is developing.

He has not examined any specimen in which sarcomatous degeneration of the endometrium attended carcinoma of the cervix, as described by Landau, but he has found either simple glandular hypertrophy or else true adeno-carcinoma. Occasionally a mixed form of carcinoma and sarcoma (carcino-sarcoma) may exist. The distinction between adenoma and sarcoma of the endometrium is not possible clinically; it is better to reject the term "malignant adenoma," and to retain only carcinoma and adeno-carcinoma. —*Amer. Jour. of the Med. Sciences.*

SULPHUR.—Attention has been drawn by Prof. Schulz (*Berl. klin. Wochenschrift*, 1892, No. 13) to the value of sulphur in certain cases of chlorosis in which iron proves inefficient, and which are not complicated with catarrhal and inflammatory conditions of the digestive tract. The sulphur was used in the form of flowers of sulphur mixed with sugar of milk, as much being taken three times a day as would lie on the point of a knife.

PREPARATION OF CAMPHOR BY MEANS OF OZONE.—M. de Mare utilizes the oxidizing properties of ozone or ozonized air for the preparation of camphor from camphene. The camphene is distilled, the receiver heated, and on submitting it to ozonized air, the camphor begins immediately to sublime on the sides of the cylinder. The camphor thus obtained is identical with the high-priced Japan article. —*Lumière électrique.*

PATHOLOGY OF PARALYSIS AGITANS.—In the *Zeitschrift für Heilkunde von Ketscher* has an important paper dealing with this much disputed subject. An abstract of it is given in a recent number of the *Neurologisches Centralblatt*. The cases of paralysis agitans, with reference to their pathological anatomy, are divisible into two classes—those in which the examination has furnished negative results, and those in which various changes have been found in the nervous system, such as hyperplasia of the connective tissue and neuroglia of the spinal cord, alterations in the nervous tissue itself and vascular changes. Similar changes have been described as occurring in the medulla and pons. Three cases of undoubted paralysis agitans have been investigated by von Ketscher. The nervous system, central and peripheral, was examined and in all three cases changes were found in both regions. The nervous structures showed atrophy, the ganglion cells of the brain were deeply pigmented and altered in form, the nerve fibres, both in the peripheral nerves and in the spinal cord, were degenerated and had in some instances disappeared, whilst the muscular fibres were also atrophied or degenerated. The neuroglia was thickened, especially around the vessels and mostly in the posterior and lateral columns. The vessels also were altered, their walls thickened, and there were miliary aneurysms and small hæmorrhages present. Similar changes, but slighter in degree, were found as senile changes in patients not the subjects of paralysis agitans; von Ketscher concludes, with Borgherini and others, that paralysis agitans is only the expression of an extreme and premature senility of the nervous system, and he is of the opinion that the primary changes are in the vessels, those in the nervous structures being secondary.

MISCELLANY.

THE PAN-AMERICAN MEDICAL CONGRESS.

OFFICE OF THE SECRETARY GENERAL,

311 ELM STREET.

Cincinnati, April 2, 1893.

The Executive Committee of the first Pan-American Medical Congress promulgates the following information:

1. The First Pan-American Medical Congress will be opened under the Presidency of Prof. William Pepper, M.D., LL.D., President of the University of Pennsylvania, at Washington, D. C., September 5, and will adjourn September 8, 1893.
2. The Countries officially participating in the Congress are restricted to Argentine Republic, Bolivia, Brazil, British North America, British West Indies, (including B. Honduras), Chile, Dominican Republic, Honduras (Sp.), Mexico, Nicaragua, Paraguay, Peru, Salvador, Republic of Columbia, Republic of Costa Rica, Ecuador, Guatemala, Haiti, Kingdom of Hawaii, Spanish West Indies, United States, Uruguay, Venezuela, Danish, Dutch and French West Indies.

Distinguished representatives of the profession from other countries are expected to be present as guests and to participate in the proceedings.

3. The general sessions will be limited in number, one for opening and one for closing the Congress, being all that will be held unless some necessity arises for a change in this particular. This arrangement will permit members to employ all of the time in the scientific work of the sections, which are as follows:

(1) General Medicine, (2) General Surgery, (3) Military Medicine and Surgery, (4) Obstetrics, (5) Gynecology and Abdominal Surgery, (6) Therapeutics, (7) Anatomy, (8) Physiology, (9) Diseases of children, (10) Pathology, (11) Ophthalmology, (12) Laryngology and Rhinology, (13) Otology, (14) Dermatology and Syphilography, (15) General Hygiene and Demography, (16) Marine Hygiene and Quarantine, (17) Orthopedic Surgery, (18) Diseases of the Mind and Nervous System, (19) Oral and Dental Surgery, (20) Medical Pedagogies, (21) Medical Jurisprudence, (22) Railway Surgery.

The evenings will be devoted entirely to social features, the detailed announcements of which will be made by the Committee of Arrangements.

4. Membership is limited to the members of medical profession of the Western Hemisphere, including the West Indies and Hawaii, who shall either register at the meeting or shall serve the Congress in the capacity of foreign officers. No membership fee will be accepted from any member residing outside the United States. The membership fee for residents of the United States is ten dollars (\$10.00.) All registered members will receive a copy of the transactions. Prominent students of the allied sciences will be cordially received as guests and as contributors to the proceedings upon invitation by the Executive Presidents of sections. Ladies' tickets will be issued upon application to registered members only and will entitle the holders to reduced fare and to admission to all entertainments. *Physicians of the United States should register at once by remitting \$10.00 to Dr. A. M. Owen, Evansville, Indiana.*

5. Papers are solicited, the hope being entertained that the program will be largely taken up with contributions from outside the United States. Papers may be read in any language, but a copy must be furnished for publication in either Spanish, Portuguese, French or English, and must not occupy more than twenty minutes in reading. An abstract not exceeding six hundred words, must be furnished the Secretary-General in one of the above four languages, by not later than July 10. Abstracts will then be translated by the Literary Bureau into the three remaining languages, and will be published in book form before the meeting of the Congress.

6. The Congress of the United States has adopted a joint resolution whereby all the Governments of the Western Hemisphere have been invited by the President to send delegates to the first Pan-American Medical Congress, and has appropriated a liberal sum for the purposes of entertainment.

7. The reduced fare offered by all transportation companies on the occasion of the World's Columbian Exposition to be held in Chicago, will be open to all persons attending the Pan-American Medical Congress. The Committee of Arrangements will endeavor to secure still greater reduction to members traveling between Chicago and Washington, and an effort will be made to arrange either excursions or circular tours for those who may desire to visit the great universities of the United States. All such arrangements are open to subsequent announcement.

8. By arrangement with the committee at Rome, the date of the Eleventh International Medical Congress has been so appointed that those who attend the meeting of the Pan-American Medical Congress may subsequently attend the former. The Pan-American Medical Congress will adjourn on the afternoon of September 8; a steamship will sail from New York on the following day, going by the Azores and Gibraltar and enabling the tourist to reach Rome on the morning of September 20, where the Eleventh International Congress will be opened on the afternoon of September 24. It will thus be seen at a glance, that in a period usually allotted to a summer vacation, the medical tourist may spend a week at the World's Columbian Exposition, the next week at the Pan-American Medical Congress, the next week and a half with delightful companions in a voyage to the Mediterranean, the next few days in witnessing the sights of Rome, and the following week at the Eleventh International Medical Congress. Special reduced rates for members and their families are given both ways on the trip to Rome, particulars of which will be furnished on application to the Secretary-General, 311 Elm St., Cincinnati, O., who is also a member of the American Committee of the Eleventh International Congress.

The best possible arrangements will be made with the excellent hotels with which the National Capital is abundantly supplied. The Committee of Arrangements will do its utmost to secure desirable rates and locations for members and their families. The headquarters of the Committee of Arrangements is at the Arlington Hotel, where communications may be addressed either to Dr. Samuel S. Adams, Chairman, or Dr. J. R. Wellington, Secretary.

10. Copies of the official announcement of the Congress, containing the regulations and the names of all officers and committeemen of the General Congress and of the various Sections, and residing in the various countries, may be obtained upon application to the Secretary-General, or to either of the members of the International Executive Committee, as follows:

Argentine Republic, Dr. Pedro Lagleyze, Calle Artes 46, Buenos Aires; Bolivia, Dr. Emilio di Tomassi, Calle Ayacucho 26, La Paz; British West Indies, Dr. James A. DeWolf, Port of Spain; British North America, Dr. James F. W.

Ross, 481 Sherborne St., Toronto; Chili, Dr. Moises Amaral, Facultad de Medicina, Santiago; Costa Rica, Dr. Daniel Nuñez, San José; Dominican Republic, Dr. Julio Leon, Santo Domingo; Ecuador, Dr. Ricardo Cuelalon, Guayaquil; Guatemala, Dr. José Monteros, Avenida sur No. 8, Guatemala City; Haiti, Dr. T. Lamothe, Rue du Centre, Port au Prince; Hawaii, Dr. John A. McGrew, Honolulu; Honduras (Spanish), Dr. Geo. Bernhardt, Tegucigalpa; Mexico, Dr. Tomás Noriega, Hospital de Jesús, Mexico; Nicaragua, Dr. J. J. Urtecho, Calle Real, Granada; Paraguay, —; Peru, Dr. Manuel C. Barrios, Facultad de Medicina, Lima; Republic of Colombia, Dr. P. M. Ibanez, Calle 5a Numero 99, Bogota; Salvador, Dr. David J. Guzman, San Salvador; Spanish West Indies, Dr. Juan Santos Fernandez, Calle Reina No. 92, Havana; United States of America, Dr. A. Vander Veer, 28 Eagle St., Albany, N. Y.; United States of Brazil, Dr. Carlos Costa, Rua Largo da Misericordia 7, Rio de Janeiro; Uruguay, Dr. Jacinto de Leon, Calle de Florida No. 65, Montevideo; Venezuela, Dr. Elias Rodriguez, Caracas.

By the Executive Committee.

CHARLES A. L. REED, Sec'y-General.

THE REPUBLIC OF COLOMBIA AND THE PAN-AMERICAN MEDICAL CONGRESS.—The Department of State at Washington has promulgated the following letter recently forwarded by the United States Minister to Colombia:

Republic of Colombia Foreign Office, Bogotia, March 14, 1892.—To His Excellency, John T. Abbott, Envoy Extraordinary and Minister Plenipotentiary of the United States, etc. —Sir:—I have received, together with your very polite note of Feb. 27th last, a copy of the instructions of the Department of State in Washington relating to the meeting of the Pan-American Medical Congress where sessions will take place in the coming month of September.

The Government of Colombia recognizes that the labors of that Congress will favor the advancement of medical science and will actively contribute to the advancement of judicious regulations connected with hygiene and naval quarantine. In response to the courteous invitation which the Government of the United States has been pleased to extend through your honorable Legation to be officially represented in the said Congress this government has appointed as its delegate for that purpose, Dr. Pio Rengifo, to whom instructions will be transmitted through the office of Public Instruction.

Asking you to be kind enough to notify the proper person of the appointment of the said Dr. Rengifo, I am pleased to reiterate to your Excellency, the assurances of my most distinguished consideration.

MARCO F. SÁNCHEZ,

Secretary of Foreign Affairs.

GOVERNMENT APPROPRIATION FOR THE PAN-AMERICAN MEDICAL CONGRESS:—Early in the last session of Congress the Secretary of the Treasury and the Secretary of State jointly recommended that an item be inserted in the Sundry Civil Bill appropriating \$15,000 for the entertainment of the Pan-American Medical Congress. The item was rejected by the House Committee on Ways and Means, but was reintroduced in the Conference Committee by Senator Gorman under whose able championship it was agreed to and became a law. The medical profession will not soon forget this considerate act on the part of the senator from Maryland.

GOVERNMENTAL DELEGATES TO THE PAN-AMERICAN MEDICAL CONGRESS:—Hon. Rowland B. Malaney, United States Minister to Ecuador, transmits information through the Department of State that Dr. Ricardo Cuelalon of Guayaquil, has been appointed one of the delegates for that country to the Congress.

The United States *Chargé d'Affaires* at Petropolis, has transmitted this information through the Department that the Government of Brazil has accepted our invitation to take part in the Congress, and has appointed Dr. J. Baptista da Lacerda, the distinguished teacher and scientist of Rio de Janeiro, one of the delegates thereto.

The Mexican Legation at Washington, furnishes information that Dr. Fernando López, Surgeon-General of the Mexican Army, has been appointed one of the delegates to represent the Government of Mexico.

THE FORTY-THIRD annual meeting of the Illinois State Medical Society will be held in Chicago, in the Methodist Church Block, cor. Washington and Clark Streets, on the 16th, 17th and 18th of May, 1893. The meeting will be called to order promptly at 9 o'clock a. m., Tuesday. To avoid the usual delay and confusion incident to registration and pay-

ing dues during the first half-day, the officers will endeavor to have registration completed by mail, in advance. All members are respectfully urged to co-operate by filling out and returning their registration blanks with the dues for the year, to the Treasurer. The executive committee has decided, subject to change to have four full half-day sessions, and one evening session, leaving Wednesday afternoon free, and hoping to adjourn finally about noon Thursday. A detailed program will be issued and mailed to members before the meeting. The Committee of arrangements hopes to secure the usual reduction in rail road fare.

D. W. GRAHAM, Sec'y.

EXECUTIVE COMMITTEE OF THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.—At a recent meeting of the Executive Committee of the Third Congress of American Physicians and Surgeons it was decided that three afternoons and one evening of the Congress be assigned, in session of one and one-half hours each, to seven of the fourteen participating organizations; and that each society selected shall be requested to prepare its own program, and select its own speakers.

The selection of the societies under this resolution, to prepare programs for the Third Congress, was made alphabetically, as follows: 1. Anatomists; 2. Climatologists; 3. Dermatologists; 4. Genito-Urinary; 5. Gynecologists; 6. Laryngologists; 7. Neurologists.

The ophthalmologists, orthopedists, otologists, pediatrics, physicians, physiologists and surgeons under this resolution will in like manner prepare programs for the Fourth Congress.

The President and the Secretary of the Congress and the Chairman and Secretary of the Executive Committee were made a Standing Committee to arrange the details of the Congress.

Dr. L. C. Gray was elected chairman of the Executive Committee, *vice*, Dr. William Pepper, resigned.

It was further decided to hold the Congress in Washington, D. C., on the last Tuesday in May, 1894, and the three succeeding days.

NEWTON M. SHAFFER,
Secretary Executive Com.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from April 15, 1893, to April 21, 1893.

Capt. Henry S. Kilbourne, Asst. Surgeon U. S. A., will be relieved from duty at Ft. Riley, Kan., on receipt of this order at that station, and will report in person to the commanding officer, Ft. Clark, Tex., for duty at that post.

Major Henry M. Cronkhite, Surgeon U. S. A., will proceed to Ft. Wadsworth, New York Harbor, and report to the post commander for temporary duty.

First Lieut. Merritte W. Ireland, Asst. Surgeon, will be relieved from duty at Ft. Riley, Kan., on receipt of this order, and will report in person to the commanding officer, Ft. Apache, Ariz., for duty at that post, relieving Capt. Nathan S. Jarvis, Asst. Surgeon. Capt. Jarvis, upon being relieved by First Lieut. Ireland, will report in person to the commanding officer, David's Island, N. Y., for duty at that post, relieving First Lieut. Madison M. Brewster, Asst. Surgeon U. S. A. First Lieut. Brewster, upon being relieved by Capt. Jarvis, will report in person to the commanding officer, Ft. Riley, Kan., for duty at that post.

OFFICIAL LIST OF CHANGES in the Medical Corps of the U. S. Navy, for the Week Ending April 22, 1893.

Medical Director A. C. Gorgas, from the Naval Hospital, Philadelphia, and to special duty, Philadelphia, Pa.

Medical Director D. Kindleberger, from special duty, Philadelphia, Pa., and to the Naval Hospital, Philadelphia, Pa.

Asst. Surgeon A. B. Pusey, ordered to the Naval Hospital, Norfolk, Va.

Asst. Surgeon Henry La Motte, detached from the U. S. S. "Vesuvius," and to the Naval Hospital, Norfolk, for treatment.

Asst. Surgeon C. W. De Valin, detached from the Naval Hospital, Norfolk, Va., and to the U. S. S. "Vesuvius."

Surgeon John C. Wise, detached from the U. S. S. "Alliance," and to the Naval Hospital, Norfolk, Va., for treatment.

OFFICIAL LIST OF CHANGES of Stations and Duties of Medical Officers of the U. S. Marine-Hospital Service, for the five weeks ended April 8, 1893.

Surgeon P. H. Bailhache, detailed as chairman of board for

physical examination of officers, Revenue Marine Service, March 21, 1893.

Surgeon H. W. Sawtelle, detailed as chairman of board for physical examination of officers, Revenue Marine Service, March 7, 1893.

Surgeon H. W. Austin, detailed as chairman of board to prepare quarantine regulations, March 10, 1893.

Surgeon J. M. Gassaway, to proceed to Ellis Island, New York, for temporary duty, then proceed to Cincinnati, O., St. Louis, Mo., Cairo, Ill., and Memphis, Tenn., as inspector. April 3, 1893.

Surgeon G. W. Storer, to inspect Hogg Island, Md., for quarantine purpose. March 17, 1893.

Mead, T. W., Surgeon, detailed as chairman of board for physical examination of officers and candidates, Revenue Marine Service, March 28, 1893.

Surgeon H. R. Carter, detailed as member of board to prepare quarantine regulations, March 10, 1893.

P. A. Surgeon C. E. Banks, to proceed to Halifax, N. S., for temporary duty, March 29, 1893.

P. A. Surgeon P. C. Kalloch, granted leave of absence for ten days. March 24, 1893.

P. A. Surgeon A. H. Glennan, to proceed to Vineyard Haven, Mass., for temporary duty, March 6, 1893. To proceed to Cairo, Ill., for duty, March 22, 1893.

P. A. Surgeon Eugene Wasdin, to proceed to South Atlantic Quarantine Station for duty, March 22, 1893.

P. A. Surgeon P. M. Carrington, to report at this Bureau for instructions preparatory to going to Hamburg, April 8, 1893.

P. A. Surgeon L. L. Williams, detailed for duty in office U. S. Consul, Liverpool, Eng. April 5, 1893.

P. A. Surgeon W. D. Bratton, to proceed to Buffalo, N. Y., for duty, March 6, 1893.

P. A. Surgeon W. P. McIntosh, detailed as member of board for physical examination of officers, Revenue Marine Service, March 7, 1893.

P. A. Surgeon W. J. Pettus, detailed for duty in office U. S. Consul, Southampton, Eng.

P. A. Surgeon J. J. Kinyoun, detailed as member of board to prepare quarantine regulations, March 10, 1893.

P. A. Surgeon R. M. Woodward, detached from duty in office of U. S. Consul, Rotterdam, Netherlands.

P. A. Surgeon H. D. Geddings, detailed as recorder of board to prepare quarantine regulations, March 10, 1893. Detailed as member of board for physical examination of officers and candidates, Revenue Marine Service, March 28, 1893.

Asst. Surgeon S. H. Hussey, to proceed to Cincinnati, O., for duty, March 21, 1893. Granted leave of absence for thirty days. March 24, 1893.

Asst. Surgeon J. C. Perry, to proceed to Vineyard Haven, Mass., for duty, March 13, 1893.

Asst. Surgeon G. B. Young, detailed for duty in office of U. S. Consul, Naples, Italy, March 6, 1893.

Asst. Surgeon B. W. Brown, detailed for duty in office U. S. Consul, Genoa, Italy.

Asst. Surgeon E. R. Houghton, detailed for duty in office U. S. Consul, Havre, France.

Asst. Surgeon J. A. Nydegger, to proceed to Pittsburg, Pa., for duty, March 6, 1893.

Asst. Surgeon W. J. S. Stewart, granted leave of absence for five days, March 8, 1893. To proceed to South Atlantic Quarantine for temporary duty, March 10, 1893. To proceed to Baltimore, Md., for duty, March 22, 1893.

Asst. Surgeon Edgar Strayer, to proceed to Portland, Me., for temporary duty, March 29, 1893.

Asst. Surgeon Rupert Blue, to proceed to Cairo, Ill., for temporary duty, March 7, 1893. To proceed to Galveston, Tex., for duty, March 22, 1893.

Asst. Surgeon J. H. Oakley, assigned to duty at Savannah, Ga., March 23, 1893.

Asst. Surgeon Norman Seaton, assigned to duty at Evansville, Ind., April 8, 1893.

APPOINTMENTS.

Rupert Blue, of South Carolina, commissioned Asst. Surgeon March 3, 1893.

James H. Oakley, of Illinois, commissioned Asst. Surgeon March 22, 1893.

Norman Seaton, of Indiana, commissioned Asst. Surgeon April 6, 1893.

RESIGNATIONS.

Asst. Surgeon A. W. Condict, resigned to take effect August 1, 1893.

Asst. Surgeon S. H. Hussey, resigned to take effect June 30, 1893.

The Journal of the American Medical Association

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CHICAGO, MAY 6, 1893.

No. 18.

ORIGINAL ARTICLES.

ON A NEW AND PRACTICAL MODE OF GROUPING AFFECTIONS OF THE SKIN, WITH AN ANALYSIS BASED UPON ONE THOUSAND CASES.

Read before the Section of Dermatology and Syphilography, at the
Forty-third Annual Meeting of the American Medical Association,
held at Detroit, Mich., June, 1892.

BY EDWARD PREBLE, M. D.,

LECTURER ON SKIN-DISEASES, MEDICAL DEPARTMENT OF WOOSTER UNIVERSITY, VISITING DERMATOLOGIST TO CLEVELAND CITY HOSPITAL AND INFIRMARY.

In a natural arrangement of affections of the skin, families should be bound together not alone by one tie, but by all possible ties, as etiology, pathology, clinical evidences and therapy. Is this the present mode? No. Consult any scheme which has ever been in vogue. One writer groups by clinical appearances—his papular affections, for example, embrace lichen planus, lichen urticatus, lichen pilaris and lichen tropicus; these four conditions have hardly anything in common, save the accident of papulation. Another writer selects the pathological process as a basis for grouping—his “exudative affections” embrace on the one hand herpes iris, and pemphigus, and on the other hand eczema. What have the first two in common with the third, other than the accident of a serous transudate? A third writer chooses anatomical seat—his “trichoses,” for example, include hirsuties and fragilitas crinium. Does a knowledge of one condition furnish any aid to the comprehension of the other? Finally, a fourth writer groups on an etiological basis, and asserts perhaps that everything is either parasitic or neurotic in origin, or refers all to some antecedent diathesis, and speaks of “scrofulides” and “herpetides.” He is of all investigators the nearest right, because etiology is the initial element in disease and must to a certain extent condition all the other factors. But as the etiology is by no means always determinable, his scheme must fall far short of perfection.

Now, for a classification to be harmonious, a system of averages, of compromise, is a pre-requisite. We have two families which furnish us with a model to approximate—these are the frankly parasitic diseases, due to the invasion of true skin-parasites, as scabies and tinea; and the infectious granulomata, which include syphilis tuberosa and lupus vulgaris. Members of each family may be said to resemble one another in etiology, pathology, symptomatology and therapy. We see no reason why a large number, if not all of the affections of the skin may not be grouped quite as successfully as these two families.

Let us invoke the aid of general pathology, and of all regional pathology save that of the skin; let us even invoke popular and legal phraseology. We find a universal consensus, scientific and lay, in regard-

ing every possible infirmity of the flesh as of the nature of either deformity, injury or disease. This is popular and legal terminology, borne out by the usual scientific division of pathology into hereditary and congenital affections, effects of traumatism in the wider sense, and diseases proper, which latter alone depend upon a nexus of both predisposing and exciting causes, and thus have elements both of deformity and injury. The deformity and injury are essentially simple in their etiology, pathology, symptomatology and therapy—diseases are most complex. Assuming that the need of this threefold division is inevitable, it only remains to determine the application of such a division to dermatology. There are many who could attempt this task with much better hope of success than the writer, and it seems to us a strange thing that no one has seen fit to rehabilitate dermatology after this fashion.

A deformity of the skin implies of course far more than the average dime-museum freak, with his “alligator,” “tattooed” or “rubber” integument. No one can fail to remark that a great many affections appear, either before birth or in after years, without exciting cause, without vascular or sensory disturbance, in a word without symptoms of any sort. Such affections appear just as does the hair at puberty, just as do the wisdom teeth at maturity, just as does the natural decay of the skin in senility, because inherited. In some cases an immediate heredity is evident, because blood-relatives share the affection—in other instances we are thrown back upon remote heredity or atavism for an explanation. To say that an affection has an embryonal origin, as in Cohnheim’s theory of tumors, is but another way of stating that the inheritance is at fault. Affections of apparent trophic origin, whether pre-natal or post-natal, or even when actually due to nerve-lesion, stand in close relationship with embryonal anomalies. They agree in most points save etiology, and indeed it would be very difficult or impossible in many cases to decide between a true hereditary and a trophic etiology. In an anomaly of redundancy, we should naturally presuppose heredity; in one of defect, trophic influence—but there is no absolute distinction possible, since the history of heredity and of causes for dystrophy are alike often wanting, for obvious reasons.

For the sake of simplicity, we should consider with the foregoing, deformities wholly secondary to trauma or disease, as well as the alteration in the appearance of the skin which is due to the introduction of foreign pigment, whether from without or within (tattooing, argyria). Such conditions, however, differing in etiology from primary deformities, have an analogous symptomatology and therapy, and all fairly belong in the same family. Deformities, then, in the widest sense of the term, include anomalies of embryonal and trophic origin, and artificial and

acquired malformation. Pathologically, we have merely an overgrowth or an atrophy, with or without degeneration of the normal tissues of the skin. Deformities all agree in the virtual absence of symptomatology, of acute phenomena and sensory disturbance. They are virtually stationary, progressive and regressive within slight limits. As a class, they stand in no relation with any exciting cause, and when there is such, it has only a historical interest, and has no significance in the treatment. Therapeutically, the indications are very few, viz.: removal in case of redundancy, and in case of defects attempts at improving the nutrition.

We make four families of deformities: 1. Redundancies, which include simple diffuse hypertrophies, nevi and benign tumors. 2. Defects, including simple absence or atrophy, qualitative atrophy or degeneration, and dystrophy. 3. Secondary and artificial deformities, chiefly scars and stains. Finally, a fourth family is made to comprise persistent aberrations of function, presupposing that these anomalies really depend upon inappreciable deformities of structure. We refer to anomalies in the functions of vessels, nerves and glands in the skin, such as habitual flushing of the surface, hyperidrosis, comedones, etc. These conditions certainly agree with most of our notions of deformity.

It is an undoubted help to a beginner in dermatology to separate at once all the preceding affections under the name of deformity, since they are alike free from all such elements as inflammation, parasitism, systemic infection and the like. My own statistics show that deformities constitute over 20 per cent. of all affections of the skin.

Now, concerning the remaining affections, what is injury alone, and what is disease? To plunge at once *in medias res*, one may say with some truth that nearly all acute conditions may be regarded as injuries, and all chronic inflammatory or infectious conditions, including heterologous new formations, may be looked upon as diseases.

An injury has no predisposition, excepting so-called idiosyncrasy. An irritant, a single irritant alone, is all that is required to produce it, and this irritant acts upon the irritable or vaso-motor elements, in the following paths: *a.* topical irritation; *b.* reflex irritation through the hollow viscera, etc.; *c.* toxæmia, when the irritant is actually in the blood-mass; *d.* direct irritation of the centrifugal nerve of a part. To these we might add a fifth, viz.: irritation due to the perspiration. Clinically, we have either a sharply localized condition or a so-called diffuse rash. Pathologically we have, always and only, a so-called angio-neurosis, in other words a pure dermatitis, which runs a course acute and essentially self-limited, although if the injury be extreme, necrosis may result. I confess that I can see no radical difference between dermatitis from poison-ivy, a dentition eczema of infancy, a pemphigus from ptomaines in the circulation, a herpes zoster, and a severe lichen tropicus. I see nothing but a single irritant causing a simple dermatitis, the differences consisting only in the nature and path of the irritant, and hence in the locality and degree of the dermatitis. The treatment of the entire family of acute affections, injuries, dermatitides, or angio-neuroses, is simply the management of inflammation in general, viz.: remove the cause when possible and use antiphlogistic, protective and sedative measures.

We divide injuries according to their source into those of external and those of internal origin. The former are subdivided according as they have an inanimate or animate causation. The first named group includes dermatitis from mechanical contact of every description, all lesions from chemical and poisonous agencies, and injuries of every kind from heat and cold. Of injuries due to animate causation, there are two families. I place together from similarity in origin and pathology, all forms of cutaneous suppuration. The second group consists of the initial lesions of specific inoculable affections, including erysipelas, diphtheritis, glanders, charbon, vaccinia, chancre, etc., local affections of the nature of poison-wounds which tend to cause lymphangitis or adenopathy and to enter the general circulation.

Injuries from within include reflex affections, toxæmic rashes, neuroses and sweat-eruptions. The chief reflex disorders have the form of pruritus or urticaria; exceptionally they may be papular or vesicular, as in the reflex so called eczema of infancy, and in herpes gestationis. Reflex affections are not usually extensive in distribution, and come and go irregularly. The toxæmic rashes are a much larger family. Many of them may be partly reflex, but the general distinguishing features of this group are a period of malaise, with or without fever, the rash being critical; and the widely generalized distribution, symmetry, progressive course, and usual absence of recurrence. Here belong all rashes of specific fevers, drug eruptions, purpura, erythema circinatum, herpes iris, pemphigus, etc. Neurotic rashes occur along the tract of a nerve, and zoster seems to stand for the type and chief representative of this family. Rashes due to the perspiration include miliaria and sudamina.

Certain rashes seem to possess an indefinite faculty for relapse and recurrence. We have chronic and recurrent pruritus and urticaria, and dermatitis herpetiformis. Clinically, it is the custom to look upon these conditions as diseases, but pathologically they are merely recurrent rashes. The etiology of this group is obscure, otherwise it would be possible to give it a more definite status.

It is certainly a wise thing for the student to separate these so-called injuries from the diseases proper. My statistics show that nearly 40 per cent. of all affections of the skin belong in this division of the subject-matter.

Whatever is not included in the divisions deformity or injury is entitled to be called a true disease. Etiologically, diseases vary greatly, and cannot well be grouped from that standpoint. In general, we may say that a disease is complex, not due to a single, simple cause, such as heredity, trophic influence, trauma or simple irritation, nevertheless its etiology must be bounded by the causes of both deformities and injuries, acting in a nexus. Diseases, therefore, have both predisposing and exciting causes, and may be due to a number of irritating influences, acting upon a skin which is the seat of some deformity. Yet it is only in certain diseases that we can actually demonstrate this causal nexus, as acne juvenilis, acne rosacea and possibly others. Some diseases have an etiology apparently of the greatest simplicity, such as might seem to entitle them to be called mere injuries, yet their symptomatology and course are those of diseases in general; we mean

parasitic and professional diseases. Finally, in many diseases, we are absolutely in the dark as to etiology, and as before said, the word disease has no precise etiological signification.

Pathologically, in confirmed diseases, proliferation of embryonal corpuscles is the rule, with more or less of progressive and regressive change. Clinically, it is often impossible to distinguish, without a considerable interval of time, between a mere simple dermatitis and a disease. The *debut*, a relapse or exacerbation of a disease is necessarily of the nature of a simple injury, yet the irritant producing the dermatitis may be but a single link in the chain of causes of the disease, merely the match applied to the combustible train. Resolution does not take place, and the site of the lesion remains vulnerable to a host of forms of irritation. Practically we may take this as a rule, that when an inflammatory condition will not disappear permanently under local management suitable for simple injury, we have to do with a disease. A disease is essentially chronic, prone to relapse, and curable only through general local and alterative measures, combining the principles of the total management of both deformity and injury.

Some diseases have a comparatively simple etiology. We isolate two families: 1, diseases due to true parasites; and 2, infections granulomata so-called. It may be claimed that such diseases should from their etiology rank only with injuries; but according to our principles, we have to consider not alone etiology, but pathology, symptomatology and therapy, and consequently we find that both groups easily take rank with diseases. Moreover, there are elements of predisposition in these conditions which must not be overlooked. Syphilis tuberosa, or the superficial gumma of the skin, the most characteristic lesion of syphilis, has in the majority of instances local exciting causes.

These two groups serve as types of two large subdivisions of diseases. 1. Type of local parasitic diseases. Here, along with frankly parasitic conditions we place diseases of a more dubious parasitic origin, such as the so-called psorospermoses, and several forms of infectious papilloma. We also place here analogous conditions due to inanimate causes, including all chronic professional affections, as corns and callus, and forms of chronic dermatitis incident to trades. Where there is some element of predisposition, conditions really simple pass on to become true diseases.

The second group includes not only such closely related conditions as syphilis, lupus and lepra, but diseases resembling them in pathology, etc., although not proven to be systemic affections—such as mycosis fungoides and rhinoscleroma. We may further add sarcoma and carcinoma, epithelioma and elephantiasis Arabum.

These two divisions of skin diseases are tolerably well understood. This is not the case with the residual affections of the skin, chiefly eczema, acne, psoriasis, etc. All of these residual diseases have been held to be due essentially to the most opposite causes. Heredity, diathesis, neurotic and trophic influences and parasites have in turn been claimed as chief etiological factors, and the results are by no means worthy of the medical progress of the past fifty years. We can only group them together as diseases of which the causation is obscure, and

in which all possible factors may enact a rôle.

Let us take acne, for example. Many individuals go through life without a single comedo or acne papule. Others, while free from the disease acne, may present at times isolated erythematous spots, or papules or pustules, few in number and transitory, attributable to ingesta, indigestion, dysmenorrhœa, or other forms of reflex excitation, or simply to mechanical irritation. Now, no one would deny that just such forms of irritation must play a very important part in the genesis of true, confirmed acne; only there must be a receptive soil before the disease proper can be manifest. No one can doubt that in the case of acne juvenilis this soil is a deformed skin, the so-called coarse-grained or orange skin, tending to the functional deformity known as comedones—while in acne rosacea, the soil is a vascular deformity well described by J. Hutchinson in an article on the flushing zone of the face. But this soil is not always enough to permit a typical case of acne, even in the presence of exciting causes. There is further, in well-marked cases, that sort of debility of tissue which allows pyogenic cocci to maintain themselves and form follicular abscesses. The fact that acne juvenilis may be cured by time alone is due to the fact that the deformity at the bottom of the disease may be outgrown.

What is true of acne is probably, perhaps to a lesser extent, true of some other diseases of the skin. Time may show that certain of these diseases have a distinctively parasitic or trophic, neurotic or diathetic origin, but it is hardly likely in view of the great disparity of opinion. The various investigators are doubtless both right and wrong; in other words, all of these factors most likely enter into the causation of these diseases, but no one cause can be at the root of any disease in the same sense that the achorion Schoenleinii and bacillus lepræ are at the bottom of favus and leprosy.

It is rather a difficult task to attempt to further group these remaining skin diseases which have such complex or occult etiology. A merely mechanical subdivision is the best at present available. So-called eczema, from its frequency and variety, may stand alone. Conditions which start essentially from follicles and are limited chiefly thereto, may well form a group, which would include acne, sycosis, eczema seborrhoicum and dysidrosis. A third group could hold all the others, for while these have no very marked affinities, they are all rather infrequent, almost nothing is known of their etiology, and in a word they are grouped together because of our ignorance concerning them. Chief among them are psoriasis, lichen planus, prurigo, pityriasis rubra and exfoliative dermatitis.

In our figures, true skin diseases make up over 40 per cent. of all affections of the skin (about the same proportion as that of injuries, and twice that of deformities). In actual frequency, both deformities and injuries must greatly outnumber the diseases, on account of the universality of navi and acquired deformities, and the great number and variety of insignificant local injuries and rashes, including the exanthemata.

We have sought to group all affections of the skin into families, the members of which should be related by the greatest possible number and variety of bonds, and append our own statistics for the past year or more, merely for illustration.

ANALYSIS OF ONE THOUSAND CASES OF AFFECTIONS OF THE SKIN.

I. Deformities (anomalies of embryonal and trophic origin, and secondary acquired and artificial malformation), 21 per cent.

A. Redundancies, $8\frac{1}{2}$ per cent.

1. Simple diffuse hypertrophies, of the skin as a whole (pachydermia, dermatolysis), or of individual tissues (ichthyosis, keratosis pilaris, hypertrichosis, lentigo, telangiectasis, adenoma sebaceum, cutis elastica, etc.), $4\frac{1}{2}$ per cent.

2. Nævi (nævus verrucosus, pilosus, pigmentosus, sebaceus, vasculosus, etc.), 3 per cent.

3. Benign tumors (fibroma molluscum, keloid, lipoma, angioma, lymphangioma, myoma, neuroma, etc.), 1 per cent.

B. Defects, $7\frac{1}{2}$ per cent.

1. Simple defects or atrophies (congenital absence, atrophía senilis, albinismus, leucoderma, canities, alopecia, rugæ, etc.), 7 per cent.

2. Qualitative atrophies and dystrophies (fatty, granular, vitreous and colloid degeneration, xanthoma, myxœdema, scleroderma, morphœa, dystrophía cutis, etc.), $\frac{1}{2}$ per cent.

C. Secondary and artificial deformities (cicatrices, strîe atrophicæ, pigmentations, tattoo-marks, coal-and powder-marks, stains, argyria, melasma from pregnancy, arsenic, malaria, etc.), $2\frac{1}{2}$ per cent.

D. Functional anomalies (livedo, hyperæmia, hyperidrosis, seborrhœa, comedo, xerosis, anæsthesia, etc.), $2\frac{1}{2}$ per cent.

II. Injuries (acute dermatitides, angio-neuroses, rashes and surgical affections, etc.) 38 per cent.

A. Cause external, $26\frac{1}{2}$ per cent.

1. Cause inanimate (lesions of mechanical, chemical and thermal origin), $9\frac{1}{2}$ per cent.

2. Cause animate (cutaneous suppurations and initial lesions of specific inoculable diseases), 17 per cent.

B. Cause internal, $11\frac{1}{2}$ per cent.

1. Reflex source (pruritus, urticaria, various erythematous, papular and vesicular eruptions), $4\frac{1}{2}$ per cent.

2. Toxæmic source (exanthemata, drug-eruptions, herpes iris, erythema multiforme, pemphigus, purpura, pityriasis rosea, etc.), $5\frac{1}{2}$ per cent.

3. Neuritic source (herpes zoster and analogous forms), 1 per cent.

4. Hidrotic source (sudamina, lichen tropicus, etc.), $\frac{1}{2}$ per cent.

III. Diseases proper, 41 per cent.

A. Local origin (parasitic and professional eruptions), 13 per cent.

1. Occupation dermatosis (corns, callus, professional eczemas, etc.), $1\frac{1}{2}$ per cent.

2. Parasitic diseases (scabies, pediculosis, tinea trichophytina, favus, pityriasis versicolor, molluscum contagiosum, verruca vulgaris, verruca acuminata, verruca necrogenica, etc.), $11\frac{1}{2}$ per cent.

B. Cutaneous phenomena of general chronic infectious diseases (syphilis, tuberculosis, lepra, mycosis fungoides, frambœsia, rhinoscleroma, sarcoma, carcinoma, xeroderma pigmentosum, elephantiasis Arabum), 8 per cent.

C. Diseases at present unclassifiable, 20 per cent.

1. Eczema (eczema infantile, capitis, manuum et pedum, cruris, flexurarum, orificiorum, senile, etc.), 11 per cent.

2. Diseases essentially of the follicles of the skin

(acne juvenilis, acne rosacea, acne cachecticorum, acne varioliformis, sycosis, eczema seborrhoicum, dysidrosis), $6\frac{1}{2}$ per cent.

3. All other diseases (psoriasis, lichen planus, prurigo, pityriasis rubra, exfoliative dermatitis, etc.), $2\frac{1}{2}$ per cent.

RESUME.

Deformities, 21 per cent.; injuries of local origin, $26\frac{1}{2}$ per cent.; injuries of internal origin, $11\frac{1}{2}$ per cent.; diseases of local origin, 13 per cent.; diseases general in character, 8 per cent.; diseases of complex or unknown etiology, 20 per cent.

122 Euclid Ave.

THE INFLUENCE OF THE NERVOUS SYSTEM IN CERTAIN DISTURBANCES OF THE SKIN.

Read before the Section of Dermatology and Syphilography, at the Forty-third annual meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

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There is no other organ of the human body where the alterations of the nervous system presiding the nutrition of the tissues produce such an apparent effect than the skin, which externally located accessible to the eye, easily shows its disturbances. The nutrition of the skin like the other organs is entirely subordinate to a certain nervous filament which regulate the tonus of the blood vessels called therefore, vaso-motor nerves. The troubles of the nutritive process of the skin clearly show the disease of the nervous element which is connected with the affected region of the skin, and they are not only the etiologic moment of the disturbance of the skin, but truly they are the effective causes. The arteries and veins are subjected to change their calibre not only in a passive way, following by the inelasticity the pressure of the blood, but also actively by the efficiency of their muscular fibers. The vasal muscles belonging to the organic system are exclusively under the control of the vaso-motor nerves, which are principally supplied by the sympathetic nerve from the whole extension of the spina and also by some portion of the basis of the brain. It is well known the experiment, that when one of these nerves is cut through, the temperature of the part of the body under its influence is augmented, the arteries get swollen and the pressure of the blood is increased. On the contrary a galvanic current applied on the same nerve produces constriction in the calibre of the arteries and consequently diminution of the temperature. These facts show that the influence of the nerves on the blood-vessels is persistent and through them the muscles of the vessels are continually maintained in an active tension.

In the arteries the contractibility is much more developed than in the veins, but in the small veins and in the capillaries by lack of muscular fibers the changes in their calibre are only passive. The organic contractibility of the arteries is not in relation with their pulsation, and in consequence their contractive power is the regulator of the pressure of the blood.

The vaso-motor nerves therefore control the nutrition of the different organs by increasing or decreasing supply of the blood, according to the energy and to the activity of the organ.

The action of the vaso-motor nerves on the muscular fibres of the blood vessels explains a large number of affections of the skin which are revealed with inflammatory symptoms and changes in its nutrition functions. These affections have nothing to do with the real inflammations of the skin and in the most of the cases they are the result of some kind of trouble in the general system; very often are the result of an irritation or poisonous substance, acting upon the centers of the vaso-motor nerves. Erythemas and many erythematous eruptions belong to this class and Auspitz called them angioneurotic eruptions. It is not this kind of skin affections, which I proposed to consider as an argument of my remarks, but I wish to speak of some disturbances in the nutritive functions of the skin, which are revealed by intrinsic alterations of its histological elements.

There is no doubt that the nerves regulating the circulation and presiding to the nutrition of the skin, have a great connection with the sensitive nerves, as often the trophoneurotic disturbances are consequence of irritation of the sensitive nervous fibres, or they are accompanied by alterations of their sensibility.

In the most of the practical cases we find that the lesions of the skin are accompanied with symptoms having reference to the nervous center. Miss V. B., of Cincinnati, a young lady twenty-two years old, for six months noticed a peculiar eruption on her body. She is a brunette, rather tall, of a good complexion, regularly menstruated, in apparent good health. When four years old she began to suffer with corea which lasted for several years. She was over with this disease, and at the age of twelve she was affected with epileptic attacks, which often repeated from two to three times a week. The epileptic attacks subsided, but it remains still now attacks of dizziness and cephalalgia which at times are repeated. The eruption consists of spots, maculæ, from the size of a dollar to that of the palm of the hand of white ivory color in the middle, surrounded by edges uniformly pinkish red. The white of the spots presents all characters of a scar, the skin cannot be pinched between the fingers, being slightly hard. The pinkish red edged are not elevated on the level of the skin, have no inflammatory symptoms, neither are accompanied by any pain or itching sensation. One spot was seated on the right gluteal region of the size of the palm of the hand, oblong, proceeding toward the hip joint. Another spot was seated on the abdomen; it begun from the right iliac region, running down to the genitals in oblique direction. Another spot, round, of the size of a dollar, was located on the middle of left thigh in its anterior region.

The young lady has no pain, no itching sensation; she complains of a kind of a numb feeling around the spots. The sense of touch on those spots is somewhat diminished. When a pin is applied on the mentioned atrophic spots, she feels the contact of the pin, but she is unable to distinguish if it is a round or sharp instrument. In the same way applying both points of a compass at a distance of one inch on the spots, she cannot say if there are two points or if there is only one, or if it is only a round instrument. Seen lately, the spots show no change, with the exception of the reddish hue of the edges, which is somewhat diminished.

This is a case of *liodermia neuritica*, glanzhaut, glossy skin, recently described as *striæ* or *maculæ atrophicæ*. Descriptions of this affection were given from Cantani,¹ Feré et Quermonne,² Touton,³ Beuhwald,⁴ Bradshaw,⁵ Troisier,⁶ Bouchard,⁷ Wilks,⁸ Sheperd,⁹ and Ohmann-Dumesnil.¹⁰ Nearly all the authors agree on this point that the origin of the *striæ* or *maculæ atrophicæ*, must be found in a trophoneurotic disturbance. Sheperd and Ohmann-Dumesnil referred to a case of *liodermia* consecutive to typhus and the last believes the cause of the disturbance of the skin to be the depriment action of the severe disease.

In my case it cannot be denied the nervous disease, as the lady first suffered with corea, then with epilepsy. Furthermore, the alteration of sensibility was very pronounced as shown by the numbness of the sense of touch in the affected regions of the skin. It was not allowed to me to make microscopical investigations of the abnormal skin; there is, however, no doubt that the whole affection is the result of a disturbance of the nutrition of the connective tissue of the corium causing that peculiar atrophy by defect in the action of the trophic nerves.

Not less interesting I find the atrophy of the pigment *leucodermia*, which I found accompanied too, with affections of the nervous system. Not long ago a lady, Mrs. A. T., thirty-nine years old, rather in poor health, asked to be relieved from white spots, which she noticed on her face and on her body. The lady was of dark complexion, dark hair, very delicate and nervous, and the mucous membranes of her mouth showed her anæmic condition. Her appetite was usually not very good, and her bowels rather costive. The menstruation was scarce and accompanied with pain. She had been at several times under treatment for melancholic attacks. Often she has hysteric spasms. In this last time she noticed a white spot on her chin, on the left side, consisting of three maculæ coalescent together, each one of the size of a quarter of a dollar, from the left corner of the mouth descending toward the neck. The natural dark complexion of the lady made a great contrast with the white color of the spots. Other irregular spots could be seen on her neck, on her chest, and on her arms and hands. Of course the spots were accompanied by no symptoms whatever, no itching, no pain, no desquamation of any kind, but in those affected regions there was a great diminution of sensibility. A degree of analgesia could be detected on her fingers, a sharp needle could not produce any sensation more than something touching. The two points of a compass applied on her arm at a distance of over one inch, were not noticeable at all as two points, but they gave only the sensation of a blunt instrument touching the skin. This shows that the sense of touch was somewhat benumbed by a great diminution of sensibility in the sensitive nerves.

According to Jacob Halpern¹¹ the regions of the human skin abundantly furnished with pigment show that its granules are mostly contained in the

¹ H. Morgagni, 1881.

² Progrès Médical, 1881.

³ Deutsche Med. Wochenschrift, 1886.

⁴ Vierteljahresschrift für Derm. and Syph., 1887.

⁵ Brit. Med. Journal, 1888.

⁶ Bulletin de la Soc. Médicale des Hôpitaux, 1888.

⁷ Bulletin de la Société de Chirurgie de Paris, 1886.

⁸ Guy's Hospital Reports, 1891.

⁹ Journal of Cutan. and Genito-Urin. Dis., 1891.

¹⁰ Monatshefte für Pract. Dermatologie, 1891.

¹¹ Ueber das Verhalten des Pigmentes in der Oberhaut des Menschen. Monatshefte für Pract. Derm., 1892.

deepest layers of the rete malpighi, and there are ramified ameoboid cells which are connected with the blood vessels and the nerves. The pigment in the white race consists in small granules of yellowish dark color surrounding these ramified cells. No pigment granules are found free into the layers of the epidermis without accompanying these cells which supply the pigment. This observation affords us the explanation that when these ramified cells remain without nutrition, their protoplasm is reabsorbed and they can not supply pigment granules any more, the pigment is reabsorbed by the cells of the rete and disappears. Pigment is nothing else than the result of a chromatopoeitic functions of these ameoboid cells, which take the blood corpuscles or their contents, changing it into pigment which is equally distributed in the layers of the epidermis.

In the appearance of the white spots of the leucoderma, we can see some relation with the distribution of the nerves corresponding to the affected region. The neuropathic origin of leucoderma can be maintained by some analogy with lepra. In some cases of this disease we find white spots on the neck and on the limbs, and in the centre of the white spots the sensibility is remarkably diminished. Lepra affecting so conspicuously the nervous system, cannot leave any doubt that the affected nerves are the cause of the disappearing of the pigment in the corresponding regions of the skin, by the disturbed action on the blood vessels.

Another form of disturbance of the skin which I met with, and which I found connected with nervous disorders, is scleroderma. A German girl eight years old, E. S., when an infant suffered with pneumonia, cholera infantum, and her skin was affected with eczema, from which she recovered. About four years ago she began to be very nervous and restless; she could not sleep, cried without any reason. At times she was suffering with neuralgic pains in her legs and arms, and at times a severe itching sensation caused her to scratch and wound herself with the finger-nails. The parents remarked that her legs were getting thinner and the skin below the knees and calves was so hard and inelastic that the girl could walk only with great difficulty. The same changes they remarked in her arms and hands, until the girl could not move, her limbs being perfectly stiff. Itching sensations troubled the poor creature to such an extent that she could not have an hour of sound sleep.

When I saw the girl she was rather well developed, her face was looking well, showing only some freckles around her nose and cheeks. The hair rather abundant, of light chestnut hue. Nothing was to be remarked on her neck, and the body was sufficiently developed. The arms were very thin and the skin was so hard that arms and hands could not be moved. The skin had a yellowish dirty color resembling parchment from the deltoid region to the fingers of the hand. The elbow was stiff and could not be bent. It was not possible to raise a fold of the skin, and it seemed that bones, muscles and skin had formed just one mass like a piece of wood.

The epidermis showed deep furrows, and especially on the hands around the wrists were fissures from the breaking of the skin by trying to bend her hands. No movement at all was allowed to the fingers, which remained stiff in semi-flexion. The pigment was unequally distributed on the affected surface, so that

the color was various, resembling a marble stone.

A large spot of sclerotic skin was on her abdomen, beginning from the left hypochondrium and extending like a bandage to the genitals, which were involved too. Both legs were in the same condition, more the right, which had lost its shape; it was stiff from the hip-joint to the toes. The left leg was affected to the knee, the thigh being nearly free. The feet like the hands were hard and stiff, with some ragades around the calf by trying to walk, which was difficult and painful. The sensibility of the affected skin was greatly diminished, to such a point of anæsthesia that a needle stuck into the skin could scarcely produce any sensation. However, the girl was suffering with itching sensations, and her skin showed some excoriations, the result of her scratching. The skin was dry and the perspiration was never remarked on her body, and was only noticeable on the head and on the face. The temperature of her body was only 97° to $97\frac{2}{3}^{\circ}$, taken under the axilla. In this case there was no doubt that not only the skin was deeply affected, but also the muscles had suffered a certain degree of atrophy, as the limbs were deformed and movements were prevented. Changes in the muscular fibres in cases of scleroderma were already found from Thibierge,¹² who expressed the opinion that the affection of the skin is only a consequence of the affection of the muscles. In our case, however, it shows just the contrary; the atrophy of the muscles seems to have been only consecutive to the affection of the skin.

I am sorry to have not been able to show any microscopical investigation of the case, on account of the objection to have cut a piece of the skin. The disease seems to have its seat in the connective tissue elements of the corium and of the subcutaneous tissue. The panniculus adiposus is completely gone by atrophy of the fatty cells, and the elastic fibers are largely increased. The blood-vessels and the lymph-spaces are compressed by the accumulation of the connective tissue elements, which produce also the atrophy of the glands of the skin.

Here we have three affections of the skin which show intimate connection with disorders of the nervous system. The first case of maculæ atrophicæ in a lady who was affected with chorea and later with epilepsy; the second case atrophy of the pigment in a lady affected with hysteria and melancholia; the third case scleroderma in a girl extremely nervous affected with neuralgic pains. I do not refer to anything new in this argument, but I want only to strengthen what has been already observed. Duhring¹³ refers to a case of atrophy of the skin in consequence of alteration of the nutrition in progressive muscular atrophy. Weir Mitchell¹⁴ referred already to cases of injuries of the nerves which caused atrophy of the skin and of the subcutaneous tissue. Robinson¹⁵ is of the opinion that glossy skin, which is a consequence of common causes, can be also produced by inflicted wounds. McCall Anderson¹⁶ refers to a case of atrophy of the skin which followed the injury of the supraorbital nerve, and supports the irritation of the sympathetic of the neck to be the cause of the atrophy of the half of the face. Brun-

¹² Rev. de Médecine, No. 4, 1890.

¹³ Treatise on Diseases of the Skin, 1881.

¹⁴ Injuries of the Nerves and their Consequences, 1870.

¹⁵ A Manual of Dermatology, 1884.

¹⁶ Treatise of Diseases of the Skin, 1887.

¹⁷ Physiologie und Pathol. des Sympathischen Nerven Systeme, 1879.

ner¹⁷ found atrophy of the skin of the left side of the face in an epileptic lady.

After having considered the condition of the nervous system of our patients, it appears that the cause of these disturbances of the skin, have to be found in that system. The action of the nerves is to regulate the functions of the blood vessels. The alterations seem to be especially on the sympathetic which presides over the vegetative functions, but we can not absolutely deny that the nervous centers are implicated in the production of these affections. Fibers from the brain and from the spine go through the ganglia which form the origin of the sympathetic, and make it an independent system. The fibers coming out of the ganglia are not only motor, but they are also of a sensitive nature. This is plainly emphasized when we see that an irritation applied on an organ under the control of the sympathetic causes to increase the movements of the organ supplied with that group of nerves. The ganglia are not organs of movement, but they are organs where the reflex action is accomplished without any knowledge of the brain. Any stimulus applied to the sensitive fibers, causes a reflex movement through the ganglia, the sensation remaining in it without causing any feeling. But when the stimulus exceeds the normal point it becomes an irritation, its effect does not remain limited to the ganglion, but is carried to the spine and to the brain, thus producing sensation. Many disturbances of the nutrition of the skin generally happen without producing sensation, remaining strictly limited in the jurisdiction of the sympathetic. This we see when the disturbance is not very intense, as in our case of leucoderma or lioderma, but when the results of the affection are deeper like in scleroderma, then some sensation is aroused, like in one case which was accompanied with neuralgic pains and itching sensations.

There is no doubt that some of these affections, by their topographic distribution on the skin, reminds the ramifications of the nerves laying underneath, or better, they follow the lines of division of the cutaneous nerves as drawn by Voight. In nevus line ris, ichthyosis cornea, hystrix, we find the disposition of the disease pursue the cause of the underlaying nerves. In one case of ichthyosis hystrix which came under my observation in a boy eight years old, the disease so closely followed the course of the sciatic and crural nerves in these regions of the skin that it looked as if somebody had drawn lines with the pencil. In many cases of anomalies of the pigment as in nevi pigmentarii, either congenital or acquired short time after birth, we see the lines wonderfully follow the ramification of the nerves of the affected region. Kaposi refers to two cases of nevi verrucosi, where the verrucae were seated precisely on the course of the hyschiatic nerve.

Neumann¹⁸ referred to a case of nervous nevus, where the pigment hypertrophy and the warts were distributed from the gluteal region to the toes of the foot in perfect correspondence with the nervous ramifications of the leg. The disposition however, of these maculae or hypertrophies of the epidermis reminds that of the underlaying nerves. According to Philipson,¹⁹ the skin disturbances follow rather the cutaneous nerves maintaining the lines of Voight. The difference of direction between some lines of altered

skin and the direction of the nerves, would be explained by the physical growth of the body, the affection remaining of the size as it was in infancy.

The nerves which control the nutrition of the skin are not distinct from others, but are in connection with motor and sensory filaments. In consequence of this fact, Baerensprung considered alterations of the skin of this kind the result of a disturbance of a spinal nerve. The same we can say in the naevi-vasculares, when the spots represent an area which recalls the nerve of the region. Nevus vascularis of one side of the face shows that originally in the embryo the trigeminus was affected and the dilatation of the capillary blood vessels was the result.

In our first case we have two areas of the skin affected with atrophy in an oblong form. It begun with a small spot of a reddish violet color, which gradually got white and atrophic in the center, showing the intensity of the color in the periphery. The intense redness was the result of stasis, due to the diminished tonus of the blood vessels, the vasomotor nerves having lost their control.

In the second case we have atrophy of the pigment following the course of the maxillary nerve inferior of one side and on the neck, breast, arm and hands of both sides.

In the third case we remarked a deep alteration of the skin affecting the corium and the subcutaneous tissue and muscles, due to the condition of nutrition of the limbs and on body.

All the three affections came recently, slowly progressing in persons affected with nervous diseases, and accompanied with nervous symptoms as anaesthesia, analgesia, hyperaesthesia.

I believe that lioderma, leucoderma and scleroderma, although different affections have great similarity between themselves. They are affections which attain people suffering with an altered condition of the general nervous system. They are the result of an affection of the nerves either central or peripheric. In one word they are the result of an alteration of nutrition of the skin by altered conditions of the trophoneurotic nerves. In conclusion I would say that the difference between leucoderma, lioderma and scleroderma is only of degree, produced by lack of nutrition affecting in the first the ameboid cells of the malpighi layer which furnishes the granules of the pigment, in the second affecting the connective tissue of the superficial layer of the corium, and finally in the third involving the connective tissue of the corium and of the subcutaneous tissue.

MEDICINAL PLASTERS.

BY JOHN V. SHOEMAKER, A.M., M.D.

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In most diseases involving the skin both constitutional and local treatment is needed in order to effect a cure or improvement. Topical remedies may be applied in different forms and it is often a question whether a powder, a solution, an ointment, paste or plaster is calculated to afford most speedy relief. Plasters possess certain advantages which render them appropriate means of dealing with some varieties of skin diseases. They are especially adapted to the treatment of chronic and localized conditions. In

¹⁸ Oesterr. Jahrbuch f. Paediatrick. 1877.

¹⁹ Monatshefte für Pract. Dermatologie. 1890.

the subacute and formative stages of some maladies they are also of value.

Plasters are composed of mixtures which are solid at ordinary temperatures but which soften somewhat when kept in contact with the skin, to which they closely adhere. The medicated material is spread evenly upon some fine texture, very fine muslin being usually employed.

Plasters constitute an efficient protection of the diseased area against the atmosphere. Bacilli which float in the air are constantly being deposited upon the general surface, and some of these microorganisms need but a fitting soil in order to become exciting causes of disease. If, therefore, the parts are first thoroughly cleansed by a disinfectant solution the application of a plaster is an aseptic procedure. It may, furthermore, be made an antiseptic dressing by virtue of the materials which it contains. This quality not infrequently enables plasters to arrest the progress of a beginning inflammation. It enables them, moreover, to protect the affected part from a secondary or mixed infection.

A plaster maintains itself constantly in position and, consequently, the active medicaments which it contains have the most favorable opportunity to demonstrate their efficiency. When applied to properly selected cases a plaster very seldom excites irritation or aggravates the malady by the development of too much heat or by confining a discharge. If any fear of such undesirable action should arise the dressing may be easily removed every day or two and the surface cleansed with oil, glycerine, water, soap or alkaline solution. The plaster may then be reapplied. On parts in which the morbid action is sluggish the dressing may safely be left in place for several days or a week. This comparative permanence of fixation is an advantage appreciated by both patient and physician.

Plasters can be so accurately adjusted to any spot that they are for this reason a cleanly dressing. This is a virtue which every one will appreciate who has seen underwear and bed clothing soiled by the use of lotions or ointments. Their cleanliness is an undeniable convenience in precisely those chronic cases to which they are, in general, most appropriate. The fine back of the dressing also guards the surface against friction.

In consequence of the adhesiveness of plasters they can be effectively used upon portions of the body to which powders, lotions and ointments cannot be conveniently applied or maintained in position. This is the case, for instance, with the face, lips and feet. A clean-backed patch of plaster upon the face is certainly a less unsightly application than a smear of ointment. An ointment will likewise in most cases be unpleasant when rubbed upon the lip. Again, plasters are particularly beneficial in the treatment of fissures. They bring the medicament in contact with the fissure and maintain its action continuously as long as needed. They approximate the edges of the crack in such a manner as to promote repair. And as fissures are, in many instances, due to the nature of the patient's occupation, plasters prevent contact of water or other more excitant fluid with the lesion. Plasters place the borders of the tear at rest and prevent them from keeping it open for an indefinite period.

These applications exert a gentle compression which in appropriate cases has a beneficial influence upon

the capillary circulation of the part. For the same reason they stimulate the absorbent vessels to remove morbid deposits.

Finally, plasters exert an influence upon nerve endings and may, therefore, be utilized for the alleviation of pain.

These preliminary considerations lead me to the enumeration of those combinations which I have with benefit employed. In connection with the description of their composition I will briefly name the conditions in which I have used the various plasters with advantage.

The basis of these preparations, the plaster-mass with which actively medicinal substances are incorporated, consists of 50 parts of india rubber, 5 parts of honey and 45 parts of soap-plaster.

LIST OF MEDICINAL PLASTERS.*

Anthrarobin.—A plaster containing 25 per cent. of anthrarobin in 75 per cent. of plaster mass is employed with success in chronic eczema, psoriasis, acne, rosacea, old syphilitic and scrofulous patches and old ulcers.

Antimony.—Antimony, 10 per cent., plaster mass, 90 per cent. Antimony plaster is a good application in indurated spots of acne and eczema, chloasma, scars and keloid.

Alum, ergot, hemlock and white precipitate.—This is composed of 20 per cent. of alum, 20 per cent. ergot, 20 per cent. of extract of hemlock bark, 30 per cent. of white precipitate and 10 per cent. of plaster-mass. By virtue of the alum and ergot which it contains, this preparation is astringent while the hemlock and white precipitate render it an excellent application when it is desirable to stimulate the absorbent vessels. This preparation checks the discharge and allays the pain of open cancer. It promotes the absorption of lupus nodules, and encourages the cicatrization of lupus ulcers. It is a serviceable plaster in scrofulous patches, enlarged glands and scrofuloderma. Its astringent properties render it valuable in hyperidrosis and bromidrosis.

Aristol.—Aristol, 25 to 40 per cent., plaster mass, 75 to 60 per cent. Aristol plaster is reliable in the treatment of scrofuloderma, lupus, tuberculosis of the skin, ulcers, chronic eczema, psoriasis, acne, rosacea and syphilitic ulcers.

Belladonna and boric acid.—30 per cent. of belladonna and 20 per cent. of boric acid are mixed with 50 per cent. of plaster-mass. The action of the belladonna is assisted by the boric acid of this preparation. It is especially appropriate to painful affections. I have used it with decided satisfaction in recurrent herpes, herpes zoster, neuralgia and hyperæsthesia of the skin. It is of service, likewise, in cutaneous anæsthesia. Local spots of pruritis are relieved by the application of this plaster. It is of utility, also, in isolated spots of erythema, of subacute and chronic eczema, in which it lessens both the itching and infiltration. This is a good plaster for use in cases of local sweating, such as excessive and fetid perspiration of hands and feet, leading to maceration of the epithelium, and a fissured and painful condition of the integument. In fissured eczema, which especially attacks the fingers and toes, belladonna and boric acid plaster is of no less value. To limited and chronic patches of vegetable parasitic disease, especially ringworm and favus, I have found

*These medicinal plasters named are prepared by Robert Young chemist, 1600 Chestnut street, Philadelphia, Pa.

this plaster a decidedly useful dressing. The boric acid destroys the organism while the belladonna assuages irritation. In cases of inflammation of the mammary gland belladonna is particularly useful and its effect in arresting the disease and checking secretion is enhanced by the combination with boric acid. This plaster is also useful in the treatment of boils, abscesses, carbuncles, inflamed glands, burns, scalds, frost-bites, wounds and ulcers.

Cade.—Oil of cade, 25 per cent., beeswax, 25 per cent., plaster mass, 50 per cent. I have often used cade ointment with success in limited spots of chronic acne, rosacea, eczema, psoriasis and in old ulcers.

Camphor and opium.—Powdered camphor, 10 per cent., powdered opium, 5 per cent., olive oil, 5 per cent., plaster mass, 80 per cent. This is a useful combination, especially in painful affections, such as herpes, herpes zoster, and boils. It is also beneficial in burns, frost-bites, dermatitis, fissured nipples and bed-sores.

Chrysarobin.—Chrysarobin plaster contains 35 per cent. of chrysarobin in 65 per cent. of plaster-mass. It is slightly stimulant and astringent and promotes absorption. The chrysarobin is capable in a higher proportion of causing painful erythema but in the strength here cited I have not witnessed irritation from its employment. Chrysarobin plaster is particularly adapted to the treatment of rebellious affections, such as psoriasis, chronic eczema, chronic acne and rosacea. This plaster is preferably kept in place for several days though it is beneficial even when it can only be applied during the night. It is serviceable in the case of old scrofulous and syphilitic spots upon the skin. Chrysarobin plaster is efficacious in the different forms of ringworm.

Elm.—Resin elm, strained, 50 per cent., plaster mass, 50 per cent. Elm plaster is serviceably applied to wounds, ulcers, bed-sores, syphilitic and scrofulous spots, acne, rosacea, freckles and chloasma.

Hydrastin.—A plaster made of 30 per cent. of hydrastin and 70 per cent. of plaster-mass, is moderately stimulant and astringent and is useful in the treatment of chancroid, unhealthy and sloughing sores, cancers and excessive secretion of the skin.

Iodoform.—This preparation contains 40 per cent. of iodoform to 60 per cent. of plaster-mass. *Aristol*, *europhen* or *iodol* may often be satisfactorily substituted for iodoform. Iodoform plaster possesses anæsthetic and antiseptic virtues. It is an admirable application to chancroids, ulcerated chancres, scrofulous and syphilitic spots and ulcers, bed-sores and wounds. This preparation may be used to arrest beginning inflammation, as in boils, abscesses, adenitis and carbuncle and is beneficial in chronic eczema and lupus vulgaris.

Iodol.—Iodol, 40 per cent., plaster mass, 60 per cent. Iodol plaster is efficient in the treatment of syphilitic, scrofulous and tuberculous patches, chloasma, lentigo, scars and lupus.

Lead.—Lead plaster consists of 30 per cent. of oxide of lead and 70 per cent. of plaster-mass. It is one of the oldest and most useful preparations of this class. As a dressing in chronic eczema it serves an excellent purpose and is especially useful in cases attended by considerable thickening and a fissured condition of the skin. *Lead plaster* is often a good application, also, in subacute eczema. Erythema,

burns, frost-bites and impetigo are among the affections relieved by the use of lead plaster.

Lead and opium.—Oxide of lead, 30 per cent., extract of opium, 10 per cent. and plaster-mass, 60 per cent., are contained in the above preparation. This plaster possesses the properties due to the lead and is applicable to the same cases as the simple lead plaster while the addition of the opium renders it anodyne. It is, therefore, peculiarly appropriate to the treatment of painful inflammatory conditions, such as boils, carbuncles, abscesses, bed-sores and irritable ulcers. Lead and opium plaster may be used with good effect, also, in herpes zoster, urticaria and paræsthesia.

Mercurial.—Mercurial plaster is composed of 50 per cent. each of red oxide of mercury and plaster-mass. It has a wide range of applicability. It is germicidal and sorbifacient, a cleanly and elegant application, and superior to mercurial ointment. It is beneficially applied to old syphilitic patches, to ulcers and scrofulous formations. Mercurial plaster diminishes pigmentation, and is therefore serviceable in freckles, and particularly to patches of chloasma. It is employed with benefit in lupus, acne and elephantiasis. Scars and hard infiltrated spots which result from inflammatory affections, as boils, carbuncles, sycosis and small-pox, are softened by the influence of mercurial plaster. In the treatment of many affections mercurial plaster is improved by the addition of 20 per cent. of extract of belladonna and 10 per cent. each of boric acid and extract of opium. Mercurial plaster may be beneficially applied to warts, burns, corns, callosities, chronic eczema and psoriasis. It is also used to promote absorption in enlargement of glands and joints.

M. Quinquaud has recently utilized a mercurial ointment in the treatment of constitutional syphilis. The formula of his preparation is as follows: Calomel, 20 ounces, castor oil, 6 ounces; and diachylon plaster, 60 ounces. The materials are thoroughly mixed and made into plasters four inches square. The directions given for use are that the skin is first to be washed with soap and water, after which a plaster is applied and allowed to remain upon the surface for eight days. Mercury begins to appear in the urine four or five days after the plaster is put on, and gradually increases, reaching its maximum on the eighth to eleventh day. The metal can be detected in the urine for the period of a month or six weeks. After the lapse of eight days M. Quinquaud is accustomed to have it discontinued and the skin left free for the space of eight days. This alternate use and disuse of the plaster in periods of eight days is said to entirely avoid the occurrence of pytalism.

Oxide of zinc.—This plaster contains 40 per cent. of oxide of zinc in 60 per cent. of plaster-mass. Oxide of zinc plaster is a most excellent preparation for use in subacute and chronic eczema. It is especially serviceable in fissured conditions. Strips of this plaster are extremely serviceable in fissures of the lip caused by eczema. This plaster can be recommended in the treatment of acne spots, seborrhœa, herpes, persistent boils and obstinate ulcers.

Oxide of zinc and camphor.—Camphor, 5 per cent., oxide of zinc, 40 per cent., plaster mass, 55 per cent. The foregoing combination relieves pain and itching. It is useful in chronic eczema, especially when itching is a prominent symptom. This preparation also

answers a good purpose in erythema, and in boils and carbuncles attended with a high degree of inflammation.

Oxide of zinc and white precipitate.—Oxide of zinc, 30 per cent., white precipitate, 15 per cent., plaster mass, 55 per cent. The presence of ammoniated mercury heightens the astringency of the oxide of zinc and renders this preparation sorbifacient. It may be used with good results in cases of irritable scrofulous or syphilitic patches. It is likewise useful in chronic eczema.

Phytolacca and belladonna.—Extract of phytolacca, 20 per cent., extract of belladonna, 20 per cent., plaster mass, 60 per cent. A plaster consisting of phytolacca and belladonna has a marked effect in reducing inflammation. It likewise promotes the repair of ulcers. Dermatitis, burns, ulcers, infiltrated and chronic patches of eczema, are relieved by the application of this plaster. The presence of phytolacca and belladonna renders it of particular value as a local remedy in mastitis. This preparation will often abort boils and inflammation of lymphatic glands if applied in the incipency of those affections.

Subiodide of bismuth.—A plaster containing 30 per cent. of the subiodide of bismuth to 70 per cent. of plaster mass is useful. Subiodide of bismuth is not irritant, it has some local anæsthetic power, is astringent and promotes absorption. It likewise possesses antiseptic virtues. This plaster may be beneficially placed upon scrofulous or syphilitic spots. It has a good effect in freckles, chloasma and rosacea. It stimulates the absorption of inflammatory deposits, as indurated patches remaining after inflammation of the skin, orchitis, bubo and glandular enlargements.

Salicylic acid.—A plaster is made containing 25 per cent. of salicylic acid in 75 per cent. of plaster mass. It is germicidal and sorbifacient. I have found it excellently adapted to the treatment of hyperidrosis, bromidrosis, eczema of the palms and soles with thickening of the skin. It removes infiltration caused by psoriasis, boils and carbuncles. Salicylic acid plaster is a useful application in erysipelas and scrofuloderma. Dr. Hermann G. Klotz, of New York, writes that he has used with much satisfaction a plaster composed of salicylic acid, 5 to 10 per cent., petrolatum, 15 per cent., and 40 per cent. each of simple diachylon plaster and soap plaster. This, by suppressing evaporation of secretions, prevents the formation of crusts, cracking of the skin, and is useful in the treatment of rhagades. Dr. Klotz has found his compound salicylic acid plaster useful in recent vesicular and pustular eczema, and also in moist eczema of some duration, in old, infiltrated eczema, in chronic leg ulcers, syphilitic ulcers, pemphigus, lupus vulgaris and erythematosus.

Salicylic acid and cannabis indica.—25 per cent. of salicylic acid, 20 per cent. of extract of cannabis indica, and 55 per cent. of plaster mass, forms a combination which I have employed with excellent results in the treatment of corns, callosities, horns, warts, acne, rosacea, chronic eczema and psoriasis.

Salicylic acid and creosote.—Salicylic acid, 25 per cent., creosote, 5 per cent., plaster mass, 70 per cent. This is a good combination. The creosote mitigates the irritant and stimulant effect of the acid. A

plaster thus composed is useful in lupus, chronic ulcers, hyperidrosis and bromidrosis.

Sulphur and chamomile.—Sulphur, 30 per cent., chamomile, 10 per cent., plaster mass, 60 per cent. In the foregoing combination the properties of both drugs are combined. Sulphur and chamomile plaster is a serviceable application in seborrhœa oleosa, papular eczema, acne and functional disorders of the sudoriparous glands.

Zinc chloride.—Chloride of zinc, 25 per cent., glycerin, 5 per cent., plaster mass, 70 per cent. This plaster is valuable in epithelioma, lupus vulgaris, and in old syphilitic and scrofulous ulcers.

In addition to the preceding formulae, many other drugs are usefully applied in the form of plasters. Aconite, aconite and belladonna, Peruvian balsam, and soap plasters are beneficial in frost-bites. A copper plaster is efficient in local spots of syphilis, scrofula, keloid, warts, burns, corns and callosities. Witch hazel is advantageous in chronic eczema and psoriasis. Arnica, asafoetida or iron may be used in plaster form for the cure of indolent ulcers and bed-sores. A plaster containing opium and iodine frequently aids removal of deep infiltrations, especially in syphilitic subjects.

Unna has introduced into dermatological practice a class of preparations which he denominates plaster-mulls. They are recommended in cases where the disease is deeply seated and the strongest applications are necessary. A layer of the medicament is evenly spread upon a sheet of gutta-percha tissue which is incorporated with a sheet of mull. In order to cause the drug to adhere both to the plaster and the skin, Unna makes use of the purest India rubber and purified oleate of aluminium. Both these substances are indifferent and unchangeable. By this method drug, plaster and skin are closely bound together. The drugs generally incorporated are mercury, carbolic acid, resorcin, salicylic acid and creosote, and oxide of zinc.

A CASE OF LUPUS.

Read in the Section of Dermatology and Syphilography, at the Forty-third annual meeting of the American Medical Association, held at Detroit, Mich., June 7, 1892.

BY W. F. BREAKEY, M.D.,

OF ANN ARBOR, MICH.

One of the purposes of this paper is to illustrate the need of delaying the report of a case until sufficient time has elapsed to have a fair and complete report.

The following memoranda of a case of lupus vulgaris, treated by Koch's lymph, May and June, 1891, with a postscript, April, 1892, are reported from notes made a year ago, as a contribution to the use of tuberculin, without comments or commendation, believing the facts to be of sufficient interest to warrant publication. Had it been reported a year ago a much more sanguine color might have been given. The inquiry suggests itself, how many of the published cures made a year ago would hold out now.

It should be stated that a case in the University Hospital, diagnosed as lupus, though not typical, had been treated for a short time with the lymph, but with unsatisfactory results, and another outpatient, with quite a typical case, was unwilling to try the treatment. I was, therefore, the more desirous to test the method in this patient, who was not only willing, but anxious to have the lymph tried.

The seat of the disease made it desirable to avoid heroic canterization or curetting, if a method more conservative as to local treatment could be tried without risk.

The cases reported from Marine-Hospital service, under the care of H. D. Geddings, which seemed to be the most carefully conducted of any that came under my notice in this country, and free from extravagant deductions or inferences, warranted a trial of the remedy that was then so noted; and as the University Hospital had a sample of the lymph sent to Dr. Vaughan, the opportunity was offered for a fair test of the treatment. No examination for tubercle bacilli was made, as it was not deemed advisable to remove sufficient tissue for that purpose; but there was no reason to doubt the diagnosis.

My memoranda of the case are as follows:

Miss McN., age 28, fair, blonde, thin, admitted to University of Michigan Hospital May 7, 1891, with the following history: The disease first appeared on her right cheek about eight years ago, previous to which time she had been well; no lupus or consumption or other hereditary or transmissible disease in her family that she knows of.

About four years ago the disease attacked the nose, resulting after about a year in destruction and loss of part of the alæ nasi, and also a portion of the septum. It had also caused superficial destruction of skin on the right cheek. At the time of her admission there were lupus crusts on her right cheek and the end of her nose, and slight ulceration of the mucous surface in the nasal fossæ. The patient was thin and anæmic. A tentative application of an ointment of pyrogallie acid was made, followed on the 12th by ungt. zinci oxide et aristol, together with the use of ol. morrhui and hypophosphites.

The first injection of lymph, 5 milligrams, was made on the 16th; temperature and respiration normal. In eight hours temperature had risen to 102.4, pulse 120, marked local reaction. The diseased dermal tissue having a thickened infiltrated and roughened appearance, and erythematous redness extending to adjacent tissue, some burning and tingling, also a decided coryza. On the 22nd, six days later, the local reaction had wholly subsided, leaving superficial and shallower lesions, improved in appearance, and the scaling less. The second injection of 7 milligrams was used at 3 P.M., the temperature reached 103.6 in nine hours, pulse 120, respiration 28, with increased local reaction, particularly under the eyes, from effusion, and in lips, and exudation over nose and cheeks ran together. These symptoms subsided with abatement of temperature. The third injection was made on the 26th. Owing to an accidental loss, by failure of the syringe, of part of the prepared lymph, .003 was injected. Yet following this small quantity the temperature rose to 103.4 in eight hours, pulse 108, respiration 28, with corresponding local reaction. All symptoms were less intense, and subsided more rapidly, and in less than twenty-four hours, when the fourth injection was made, on the 27th, 4:30 P.M., nine milligrams being used, the largest dose injected; it was followed by the highest general and local reaction, temperature 105.4, pulse 124, respiration 32, in six hours, with more general distress, dyspnea, cough, slight expectoration of a tenacious mucus, pain and uneasiness all over, but particularly in the chest, with considerable depression of the heart's action.

Whisky, quinine and digitalis were administered. The local reaction was greater in copiousness of serous exudation, the skin of the nose looking at first almost erysipelatous, but for the roughness; and later covered with a thick yellow crust, which remained on the nose for several days. After the fourth injection the skin was quite clear, but a small pulpy tubercle on the right ala nasi, and it was thought best to test further reactions. The fifth injection, of six milligrams, was made June 5th, the temperature rose to 104.4, pulse 108, temperature, 32 in ten hours, general and local reaction less marked. Coryza came on in four hours, temperature subsided more quickly than in any former injection of full dose, beginning to decline in twelve hours more, the effusion less and rapidly subsiding. The seventh injection of five milligrams, was used June 15, 5 P.M., and on the 16th, at 10 A.M., the temperature was 100.05, at 1:30 P.M., it was 101, with the pulse 92, and respiration 20. The eighth injection was made on June 18, at 3 P.M., temperature 98.25; on the 9th, at noon, the temperature was 101, pulse 98, respiration 24. By the evening of the 10th temperature 98.05, pulse 80, respiration 20. The ninth injection was given on the 21st, six milligrams, at 8:30 P.M., temperature 101, pulse 96, respiration 22. Eleven A.M., on the 22d, temperature 99.05, pulse and respiration normal. The tenth injection was given on the 25th, six milligrams, 8:30 P.M.; at 9 A.M., on the 26th, the temperature was 100.05, pulse 88, respiration 20; on the 27th temperature 99.05, pulse 84, respiration 18.

Each succeeding injection had less reaction, and lesions on cheek and nose had all healed, although there was a slight pulpy jelly-like tubercle, but smaller than before, still remaining where it had been at the outer border of the right nasal fossi.

The point of interest is that the cure or improvement was not more permanent than has followed other modes of treatment, or none at all; and the prompt and rather rapid gain was not more marked than has followed an erysipelatous inflammation.

Afterward I made the following note: The patient was taking tonic coincidentally with the tuberculin, and upon discontinuing them the disease returned more actively. She returned to the hospital a month ago, or thereabouts, with recurrence in nearly all the old regions of disease. She has for the past three weeks had daily injections of the Gibbs-Shurley iodine liquid in gluteal region, and though no reactions occurred, the general condition improved. She is taking cod liver oil, etc., and has used pyrogallie acid locally on the ulcerating tissue. The destructive process shows marked abatement, and the general health has improved; though there is an evident outbreak in the left lower eyelid. The present condition justifies the conclusions of Dr. Geddings.

THE *Alienist* defines a consultation as "a conference with a view to joint treatment." A consultation is *not* a meeting of a practitioner to learn what he has done in a particular case and what he knows of the personal and family history of the patient. Unfortunately, this kind of meeting has been termed a consultation. Because of this muddled understanding of terms, much bitter controversy has arisen.

A CASE OF TUBERCULAR ADENITIS WITH GENERAL ALOPECIA AND PRURITUS.

Read before the Section of Dermatology and Syphilography, at the
Forty-third Annual Meeting of the American Medical Association,
held at Detroit, June, 1892.

BY JAMES H. DUNN, M.D.,

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The following case of tuberculosis of the lymph nodes presents some phases in its clinical history which were to me quite novel, particularly the general alopecia and pruritus which during the first year of the disease were the patient's chief plague. Early in April, 1890, Dan. McA., Irish American, farmer, aged 21, fell under my observation and gave the following history: His father, mother, several brothers and sisters are all living and healthy. Of more distant relatives he knew but little, yet denied any rumor or knowledge of a tuberculous family record. He had been a very healthy and athletic young man, five feet nine inches in height, weight 155 pounds, light hair and complexion with bright blue eyes. For several years he had each autumn been engaged in "feeding" threshing machine. While employed in this very dusty work during the fall of 1888 he began to cough without expectoration, noticed marked enlargement of his cervical glands, and began to be annoyed by a terrible itching of the surface of his whole body. All these troubles were attributed to his dusty employment, but after his fall work was over, the cough and pruritus not abating, he consulted a physician, was better for a time and able to work until the fall of 1889, when while again threshing he became much worse, the pruritus especially being so intense that he came to the city and consulted a dermatologist—my esteemed friend Dr. Vanderhorek. In April, 1890, his parents sent him to St. Mary's Hospital, where he fell into my hands. At this time the lymphatic glands of the cervical and axillary regions were enlarged varying from a hazel nut to a hen's egg in size. None of these glands had supplicated nor did they in the further course of the disease show any of the usual tendency of tuberculous glands to break down. On the right side of the neck the mass of tumors was so great as to constitute a very noticeable deformity. Respiration was very labored, and an almost incessant dry barking cough plagued the patient night and day. He was incessantly rubbing and scratching. The skin was remarkably anæmic, somewhat thickened, and slightly pigmented from long scratching. There was no eruption excepting the scratch marks, most numerous upon the legs, next so on the thighs and forearms, then the arms. However the whole surface itched, and while conversing he was always engaged in rubbing the face, the scalp, or some other part. His body was almost devoid of hairs which had fallen out since this itching began. There was a very scanty and scattered growth upon parts of the scalp but absolutely none elsewhere, eyebrows, eyelashes, pubic hairs, etc., were wanting. His appetite was poor, and he was much reduced from loss of sleep. On examination of the chest by several physicians there was found to be extensive dullness over the mediastinum both in front and behind, and extending some distance to the right and left of sternum, which all agreed was due to an extensive growth or mass of greatly enlarged tracheo-bronchial

glands. The spleen was not perceptibly enlarged. After a considerable study and observation of the case, I concluded that it was one of Hodgekin's disease, the pruritus and alopecia being due to pressure disturbances of the sympathetic system. As I was unable to relieve any of his symptoms, I sent him to my colleague, Dr. J. W. Bell, who put him upon codliver oil and arsenic I believe, remedies which we had tried in vain, and in less than a week he became, as he said almost a well man. The enlarged glands, reduced in size, the cough nearly cleared, the pruritus abated, he slept and ate. Of course the glandular enlargement and all the attendant symptoms had several times in the course of the disease receded and advanced, but never since the disease had been very bad had the change been so marked. He left the hospital July 11, in great hopes, though his people were informed that the respite was only temporarily. This lull in the fury of the disease lasted about one month till August, then the old symptoms all returned. I saw him no more until the post-mortem, but learned from his father and attendants that during this period of betterment his hair came in quite thick and he gained in weight several pounds. After his relapse he soon got into his old condition—incessant cough, pruritus, alopecia again almost universal, sleepless, pale, and ran along in about this condition until in November, 1890, when all his symptoms became more distressing and his abdomen and lower extremities began to swell. Abdomen was tender and painful. During the winter he failed in every way, became considerably emaciated. He died July, 1891. For some weeks before his death abdominal swelling had subsided and the legs and feet were less dropsical. Whether he had fever during this latter course which corresponded to a widespread invasion of general tuberculosis, we have no record, but during his stay in the hospital the previous summer there were no temperature disturbances.

At the post-mortem examination, held twenty-four hours after death, the following state of affairs was disclosed: The body was emaciated, lower extremities moderately œdematous, and with the exception of a very sparse growth of light hair on parts of the scalp, the body was entirely destitute of hair. The pubic, axillary and superciliary hairs, as well as eye lashes, had fallen out. There was no trace of beard and but little hair on the head. There were many abrasions, particularly upon thighs and legs, caused by scratching. The various chains of lymphatic glands were all more or less enlarged. Some of the cervical chains and the axillary on either side were of the size of a walnut. The inguinal glands were not much enlarged. On opening the chest the heart was found to be normal. The mediastinum was literally packed with a great mass of large roundish and irregular tumors, clearly a huge growth of all the bronchial and other lymphatic glands of this region. They were matted together so as to be very difficult of separation, but many were larger than hen's eggs. The pleural cavities were totally obliterated by adhesions, and the lungs were everywhere studded with tubercles the size of grains of wheat.

On opening the abdominal cavity no fluid was found, but all the organs of this cavity were adherent in one mass by more or less firm adhesions, and the peritoneum was everywhere studded with tubercles, not the finer or genuine miliary variety, but some-

what irregular bodies from the size of sago grains to small peas. So far as the eye could detect there were none of the millet seed sized, whitish-gray hard nodules sometimes seen in acute miliary tuberculosis. These were larger, softer, and more caseous in appearance. The abdominal glands were all greatly enlarged, many of them from walnut to hen's eggs in size.

The omentum was a thick, hard, nodular mass. The liver was somewhat enlarged, everywhere adherent to surrounding parts, but presented no visible tubercles in its interior. The capsule of the spleen was very thick and dense, and so intimately adherent to adjacent parts that it was extracted only after long and powerful tearing. The organ was considerably enlarged, but no tubercles were seen in its parenchyma. The kidneys were like the other organs firmly imbedded by the thickened peritoneum, but appeared normal on section. All the internal organs of chest and abdomen excepting the heart were adherent into one mass by the adhesions.

The cause of death was general tuberculosis arising from tuberculous glands.

Among the occasional sources of pruritus, I believe Kaposi and others mention lymphadenoma or Hodgkin's disease, and it is perhaps not to be marveled at that so protean a disease as tuberculosis should give rise to a great variety of symptoms. Probably no other specific infection save the syphilitic gives rise to such varied symptom complexes as the tuberculous. Outside of the pulmonary and other more ordinary manifestations, its ravages are often most curious. The autopsy is not rarely a surprise party.

SOCIETY PROCEEDINGS.

Georgia State Medical Association.

Proceedings of the Forty-fourth Annual Meeting, held at Americus, April 19, 20, and 21, 1893.

FIRST DAY—MORNING SESSION.

The Association convened in the City Hall and was called to order by the President, Dr. A. A. Smith, of Hawkinsville, at 10 A.M.

Prayer was offered by the Rev. A. M. Williams.

AN ADDRESS OF WELCOME

was delivered by Mayor A. S. Cutts, which was responded to on behalf of the Association by Dr. Mark H. O'Daniel of Macon.

The first paper read was the President's

ANNUAL ADDRESS,

by Dr. A. A. Smith.

President Smith said that Georgia had her boards of education, her boards of health, her boards of trade, and her various other boards, but she had no board of health. The sanitary condition of her 2,000,000 inhabitants, dwelling within the borders of 137 counties, should be looked after and cared for in an official way; and a board of health, composed of the best medical talent in the State should be established for that purpose. He knew of nothing that would be more conducive to the protection of the general health and prosperity of the people than the permanent establishment of a State Board of Health. He also recommended the permanent establishment of a State Board of Examination, and said no one should be allowed to practice medicine within the borders of the State until he shall have passed a rigid and satisfactory examination under this board, and received therefrom a certificate of proficiency. This would drive

away quacks, and thereby not only protect the health and the lives of the people, but also the honor and the dignity of the profession. Furthermore, the curriculum of medical institutions in Georgia should be raised to a higher standard. Nothing less than the three course system should be tolerated, and each of these courses should be made broader, deeper, and more comprehensive. With a State Board of Health, and a State Board of Examination permanently established, and the curriculum of the Georgia medical schools raised to a higher standard, the profession would greatly accelerate the onward and upward progress of such a cause, and as it moved up onward and upward, higher and higher, mantled with the glory of its past, and crowned with the splendor of its future, God's truth would bloom upon its brow, and God's approbation rest upon its work.

Dr. C. C. Hart of Cross Keys, read a paper entitled

SHOT-GUN PRESCRIPTIONS,

in which he asked whether it was right to make what is known as "shot-gun" prescriptions. Personally he thought it was not right, because it increased the difficulty of prescribing, and made the therapeutic action of medicines more uncertain and consequently less safe for the patient. We should strive to make medicine an exact science, which we could never hope to do without exact knowledge, and how are we to know what effect a certain medicine has when it is combined with several other medicines, some of them perhaps of an antagonistic nature?

Dr. J. I. Darby of Americus, contributed a paper entitled

PUERPERAL SEPTICEMIA AND ITS TREATMENT.

FIRST DAY—AFTERNOON SESSION.

The first paper read was by Dr. J. M. Head of Zebulon, entitled

PUERPERAL ECLAMPSIA WITH A REPORT OF CASES.

True eclampsia might differ from epilepsy clinically, but the paroxysms of each were essentially the same. We find in eclampsia occasionally premonitory symptoms which, if properly interpreted by the obstetrician, will put him upon his guard and sometimes enable him to ward off the attack. However, in a considerable number of cases the symptoms are so slight as to escape detection, and suspicion is not aroused until severe convulsions are on. Hence we find it is of practical importance to bear well in mind the most common of the symptoms which are associated with cerebral troubles, such as severe headache, either general or unilateral, spots before the eyes, dizziness, blindness, vertigo or impairment of the intellectual faculties, which are occasionally observed. Again, we see symptoms manifested in restlessness, irritability of temper, stupor, general indisposition, oedema of the cellular or subcutaneous tissue, shown by swelling of the lower extremities, but this one symptom bears with it a much more serious import when it is observed as occurring in the upper extremities or a swollen face. These symptoms are sufficient to excite the most serious apprehensions and lead us to make examinations of their causes.

So eclampsia should be considered of a functional nature through reflex influences, as chorea is an occasional feature of pregnancy. For the purpose of elucidation the speaker mentioned the prominent disorders of the pregnant stage.

CONTAGIOUSNESS OF CONSUMPTION.

Dr. J. G. Hopkins, of Thomasville, read a paper on this subject. The speaker said he had joined the growing army which placed tuberculosis in the category of contagious diseases, and his experience with this disease during nineteen years of investigation in Thomasville—which place is a

resort for consumptives--bore him out in his opinion, and made him a willing subject of the great and erudite Koch. He does not doubt but that all men, women and children at some time or times receive into their air passages, the tubercle bacilli, but fortunately the great majority possessed the power of repelling them and throwing them off; they did not find that soil, so to speak, which is adapted to their growth. Indians in a state of nativity seemed impervious to the germs of consumption, but were now dying by thousands on the reservations. The whites and the blacks in prisons and asylums all over the world labored under similar conditions. A report from the Illinois State prison at Joliet says that there are 1,400 convicts within the walls, and fully one-third of them have consumption in a light or bad form. Nearly all deaths of persons in the penitentiary have been caused by consumption.

Dr. Hopkins emphasized the danger that lurks in sleeping cars, in carpets, bedding, clothing, and in the walls of apartments occupied by consumptives, which have not been properly renovated and rendered harmless by antiseptic measures.

Consumptives should be forced to provide for the destruction of sputa. Whenever situated so as not to expectorate directly into a germicide or the fire, they should use some means of conveying the sputa to the germicide or the flames. If handkerchiefs or cloths are used, they should not be sent to the laundry as human happiness and life are jeopardized through the probability of inoculation through abrasions upon the hands. These bacilli should never be allowed to dry up and impregnate the air, as is now done through ignorance of possible result. Numerous experiments by leading medical authorities have proven beyond doubt that consumption is an inoculable disease, and so rapidly is the throng of converts growing that the speaker would not be surprised, if, even in his day, resorts now soliciting the patronage of the consumptive will be quarantining against him.

Dr. J. MacFadden Gaston of Atlanta, read a paper entitled

SCIENCE IN MEDICINE AND SURGERY.

He said at this time the medical profession was undergoing a most interesting transition from the extreme views which had been held by some in regard to the employment of germicides in surgical practice. There was a time within the past decade when it was deemed to be scientific and progressive to use antiseptic measures of the most energetic kind in all operations, whether there was a septic element to combat or not. But, thanks to the mature investigation of the effects of germicides upon normal structures by bacteriologists for this class of work, it has been demonstrated that the so-called antiseptic agents are capable of setting up septic processes in healthy tissues. The tables are now turned, and instead of a surgeon being compromised by eliminating germicides from his surgical procedures in ordinary cases, and confining his irrigation of recent wounds to simple sterilized water, it is he who departs from this course by the employment of solutions impregnated with toxic agents who is held responsible for the consequences of their absorption. In case there is a healthy and normal state of structures involved in a cutting operation, there can be no indication for antiseptics, and their use is only calculated to do harm by absorption, and the best men in the profession have ceased to employ them. The most energetic and hence the most likely to cause mischief is corrosive sublimate. Dr. Gaston quoted Dr. Vance of Louisville, as saying that "it was beyond all doubt that the present position of bichloride was rather against its use, and that it did more harm than good," as demonstrated by Welch and Abbott.

Dr. Mark H. O'Daniel, of Macon, read a short paper on

MULTIPLE NEURITIS, ALCOHOLIC,

and reported a case. The patient was thirty-six years of age, fleshy, short build, short neck, florid complexion, a bilious temperament, and a book-keeper by occupation. The patient had taken but little exercise for quite a long while except in the elbow joints. He came of a nervous ancestry, an aunt having died of climateric mania, and other relatives who had been insane for a short time, showing beyond doubt a predisposition on part of the patient to nervous trouble, which if it had not existed, the use of alcohol might not have precipitated the disease in question. The patient drank from one to two quarts of whisky a day, that is, during twenty-four hours. He had all the symptoms of such cases. Under appropriate treatment the patient made a good recovery.

Dr. Willis F. Westmoreland of Atlanta, followed with a paper entitled

SYPHILIS FROM A SOCIOLOGICAL STANDPOINT.

in which he said year after year, particularly in the clinics, syphilitic subjects, a great many of them women, came before him suffering from this disease in all its stages, from the original lesion to the worst ravages of the second and tertiary stages, with mucous patches and syphilitic ulcers covering them. And when he found upon investigation, many of them servants, occupying various household positions as chambermaids, nurses, cooks, waitresses, etc., he could not but think that God protects the families exposed to the baleful contamination of their service, and particularly the poor little defenseless ones whom they nurse, and with whom their relations are so intimate. Any one who has not investigated the subject will be overwhelmed with surprise at the number of cases acquired otherwise than by sexual intercourse, and the various means by which it has been transmitted. Physicians and dentists are themselves exposed, and likewise expose their patients to these dangers. Thousands of physicians and midwives in the practice of their calling, in examining and operating on syphilitic subjects, or by post-mortem, are exposed. Dentists by having their fingers scratched against a rough tooth or instrument, while working on a patient whose mouth is filled with mucous patches. On the other hand, many more patients are infected by the carelessness of physicians.

APRIL 20, SECOND DAY—MORNING SESSION.

Dr. W. H. Elliott of Savannah, addressed the Association on

ELASTIC CONSTRICTION AS A HEMOSTATIC MEASURE,

his remarks being a review of Senn's method. He said the Association was familiar with Esmarch's method, which consisted in putting on an elastic bandage from the periphery slowly and gradually, so as to empty the limb of blood, putting it on up to a point just above where the surgeon is going to operate. He then puts on a narrow elastic band at that point, so as to cut off the circulation from the limb entirely, then removing the compression bandage to go on with the operation, which he had fitly called "a bloodless operation." Esmarch was not the inventor of the bloodless operation, but surgeons were indebted to his genius for improving its technique and for making this established method a popular procedure in surgery. The speaker then stated the two grave objections against the method as used by Esmarch, as advanced by Dr. Senn. The first objection was that forcible compression of the blood out of the tissues by an elastic bandage was liable to send into the surrounding tissues the elements of microbic and malignant diseases. Cancer cells may thus be scattered and disseminated through the system, or the cells of pus or

of tuberculosis might be sent abroad to do damage elsewhere. The second objection raised was that the constricting of the limb with a tube or a narrow bandage at one point was liable to do injury, first to the muscle, and secondly to the nerve. Dr. Elliott had used Esmarch's method as modified by Dr. Senn with great satisfaction.

Dr. O. H. Buford of Cartersville, reported a rare case in obstetric practice, showing hour glass contractions on fetus.

Dr. W. P. Williams of Blackshear, read a paper entitled

PERSISTENT REMITTENT OR SO-CALLED TYPHO-MALARIAL FEVER.

The author gave an analysis of a few cases of persistent remittent fever, touching its diagnosis and differential diagnosis from typhoid fever especially. He presented the clinical side of the matter, as his investigations extended no further. He presented three forms for consideration: *First*, the abortive form, or such as are immediately amenable to treatment. *Second*, the continued form with low temperature. *Third*, the continued form with high temperature. Under the first form he was called to see the case of a negro that had been sick about a day. He found a temperature of 106°, no other striking symptom. He gave him fifteen grains of quinine, and left two other doses to be repeated at six-hour intervals. His diagnosis and prognosis were persistent remittent fever, with the prospect of a long siege. He returned the next morning, and found that the patient was up and gone.

The value of a diagnosis between these maladies was apparent when we came to the subject of treatment. The treatment which the speaker had followed, which had proven reasonably successful in persistent remittent fever, was the anti-malarial preparations, principally cinchona and its derivatives, and arsenic, with cholagogue cathartics (most frequently calomel) at stated intervals, applying other medicines as they were indicated. This treatment, while very beneficial in a large number of malarial cases, he would consider utterly useless and even dangerous in applying it to typhoid fever cases. The author closed his paper by saying that for every degree in rise of temperature there was a corresponding increase of heart action from eight to ten beats. In several of his cases of this fever this ratio was completely destroyed, and in some the reverse took place.

Dr. M. L. Currie of Mount Vernon, read a paper entitled

PERIPROCTITIS WITH AN ABSCESS AND REPORT OF A CASE.

He said periproctitis was one of those infrequent inflammatory diseases which the general practitioner might at any time be called to treat, and which he might fail to recognize until much damage to his patient ensued. It is usually suppurative in character, but a cure may be effected by absorption, even after a distinct tumor is formed. Of the cause of the disease but little can be said. It may result from traumatism, foreign bodies, extension of adjacent inflammatory processes, or any structural disease involving the mucous membrane of the rectum. The manner of its extension and the course of the morbid processes excited, are identical with those seen in perityphlitis following typhlitis. The prognosis depends much upon the time when a diagnosis is made, the treatment of both the inflammation and the abscess, as well as the physical condition of the patient. When the vitality is low, and the abscess high up in the pelvic cavity, or when the patient is tuberculous, it is unfavorable; when otherwise, we may hope for recovery. The author then gave the diagnostic symptoms and the treatment in connection with the case he reported.

Dr. R. R. Kime of Atlanta, followed with a paper on

ECTOPIC PREGNANCY, ITS PATHOLOGY, SYMPTOMS AND TREATMENT.

After dwelling upon the pathology and symptoms, the author summarized the treatment as follows:

1. In primary or secondary intra-peritoneal rupture of ectopic sac, operate by coeliotomy at once.

2. Before primary rupture with diagnosis of tubal pregnancy, extirpate cyst, tube and ovary. Feticide for this condition by electricity and morphia injections are but temporary expedients, suitable for cases of doubtful diagnosis, or where a competent operator can not be obtained. Their use only allures patients into a false hope of security when delay is dangerous. If diagnosis could be made in first three or four weeks of pregnancy, then electricity might accomplish more potent results.

3. With extra-peritoneal primary rupture into broad ligament in early weeks of gestation, producing pelvic hæmatocele, wait for absorption of effused blood; if it fail, then perform coeliotomy or vaginal drainage.

4. If child survives primary rupture of tube into broad ligament, do not commit murder, keep a clean conscience toward God and man, let fetus live, keeping patient under strict observation, ready to operate at any time when life of patient demands it, or fetus has at least reached a viable period. By waiting for development of fetus and cyst as Tait claims, the peritoneum is pushed up on the side in which they are located, so that in later months of pregnancy a lateral incision will enter cyst, and fetus may be extracted without entering abdominal cavity.

5. Surgical interference should be the rule in all cases of ectopic pregnancy reaching full term, even after spurious labor and death of fetus.

Dr. Luther B. Grandy of Atlanta, read a paper entitled

A BOARD OF MEDICAL EXAMINERS; THE STATE'S MEDICAL DUTY.

in which he suggested the advisability in November last of taking steps toward the establishment of a board of medical examiners in Georgia. The question under discussion was one which touched every home in Georgia, into which sickness or accident would surely come at one time or another. There were two classes of so-called doctors from whom the people of this and every State need to be protected. One was the ignorant practitioner without capacity, the other was the unprincipled charlatan without conscience. The absence of such a board and the fact that a diploma was a license, was but throwing down the bars to all the incompetent and fraudulent who were being rejected in other places. And here was the point of the matter which was of the most interest to physicians, because it had such a bearing upon the *personnel* of the profession of the State. If the medical profession in Georgia was to be made up largely of those who had been refused by other States on account of incompetency or dishonesty, then it was time we were entering our protest at once. There were about 2,700 physicians in Georgia, and still they came, and all were welcome. None were ever rejected. By a reasonable estimate about 700 of these would have been declared unqualified in other States. There had been nearly 400 rejections by the Virginia and North Carolina boards within the last seven years. What became of all those persons who were examined and declined by the boards of New Jersey, Virginia, North Carolina, Florida, Alabama, Illinois, Minnesota and other States? Our neighbors, Alabama, South Carolina and Florida, have rejected respectively 20, 29 and 30 per cent. of their applicants. Where do these people go? As for the quacks, when driven from one place they quickly take refuge in another. They change their sky but not their affections (*calum, coelum, autum, autum*). Like other moving bodies

they travel along the lines of least resistance until they find some place still willing to receive and patronize them. Dr. Grandy closed by saying that if Georgia would like to divorce the right to practice medicine from the empty honor of having a diploma; if she would like to bring about higher standards in her medical schools and stimulate her students to higher aims; if she would like to improve the *personnel* of the medical profession in the State and endeavor to make it what it should be, an intelligent, honest and conscientious body of physicians; then let there be established a Board of Medical Examiners who shall be untrammelled of any college connections, and who shall determine whether a given applicant is qualified to practice medicine in Georgia.

Dr. Arthur C. Blain of Macon, contributed a paper entitled

THE PRACTICE OF MEDICINE IN GEORGIA.

He called attention to the want of laws governing the practice of medicine in the State. He also emphasized the importance of creating a State Board of Medical Examiners. Georgia was made a dumping-ground for all who failed to pass the requisite examination to obtain a license to practice in Virginia, Florida or Alabama. State Boards not only afforded protection to the people from charlatans and unqualified practitioners, but exerted a salutary influence towards elevating the educational standard of the medical profession. The speaker recommended that a committee be sent to Atlanta during the next session of the legislature to assist in formulating and passing some good law that would meet the requirements of the case.

Dr. J. C. Avery of Atlanta, followed with a paper on "State and Municipal Hygiene."

The three papers were ably discussed by Drs. C. D. Hurt, R. O. Ingram, Willis F. Westmoreland, W. H. Elliott, F. W. McRae, M. B. Hutchins, and a committee of one from each congressional district appointed for the purpose previously outlined.

SECOND DAY—AFTERNOON SESSION.

Dr. C. D. Hurt, of Atlanta, read a paper entitled

ETIOLOGY OF PUERPERAL ECLAMPSIA, ITS TREATMENT, WITH REPORT OF SOME TYPICAL CASES.

After a careful study of various authors and summing up his observations and experience at the bedside, the author felt warranted in offering the following conclusions: 1. That eclampsia gravidarum in every case is the result of some influence which is directly or indirectly exerted upon the nervous system, causing a derangement of its functions. 2. That such influences may exist singly or be coöperative, and that such influence may be direct violence or mechanical pressure. 3. That one or more of these influences may reach the nervous system by absorption or through the circulation. 4. That by chemical changes wrought under certain conditions in the system, toxic elements may be created and proved deleterious. Again, certain elements are harmless as they exist in normal proportions in the constitution, but exert a toxic influence in abnormal quantities. Urea as a toxic element abnormally increased by retention in the system, is assigned by many as the most frequent cause. Yet there are some who do not hold to this opinion. All admit that eclampsia and uræmia coexist in a very large per cent. of cases, while they disagree as to their relation of cause and effect. Furthermore, all admit that uræmia can not be found to exist in every case of eclampsia, therefore, other causes than uræmia can and do produce eclampsia. That in every case irritation may and does exert an influence which materially aids in bringing on a seizure, and that in many cases this irritation, intensified by protracted labor, hard pains,

unyielding os and exhaustion of the nervous system, develop eclampsia. That a plethoric condition of the patient, full habit, distended blood vessels, increased susceptibility to an apoplectic condition and excessive irritability, and that with this plethora a crowding of the blood into the lungs and upon the brain materially interferes with the functions of the nervous system. That the emotional system is not silent in some women, and that it helps to precipitate a fit.

Dr. H. McHatton of Macon, read a paper entitled

FOUR WOMEN WHO REFUSED OOPHORECTOMY AND THEIR SUBSEQUENT HISTORIES.

The author gave a brief *resume* of the histories of the only four women that he had ever known who refused the operation. The time that had elapsed since it was advised varied from eighteen months to twelve years. The speaker made the point that in each case the operation was advised and urged by gynecologists of standing both North and South, consequently they must have been convinced that they were cases demanding operative interference. In a practice of twelve years he had had occasion to recommend the removal of the appendages once, excepting cases of ovarian tumors, and that one proved to be a case of pyosalpinx. Several of his patients had drifted into other hands and had oöphorectomy performed, and as far as he could learn had been disappointed in the results each time. The best men in this special line of work were doing the operation less and less each year. Their place was being amply filled by lesser lights, with smaller numbers of individual cases, but with a yearly aggregate that is terrible to contemplate. By what combination of circumstances could one man, to fame unknown, in a small interior city, and in a short space of time, find 144 cases demanding abdominal section?

Dr. C. H. Peete of Macon, contributed a paper on

PARTIAL TENOTOMY, A RADICAL CURE FOR HETEROPHORALGIA.

The author finds that the majority of cases suffering from heterophoralgia are those of young adult life, or that they have been sufferers since that time. He accounts for it by the fact that we know in order to cause it the patient must concentrate his vision on an object, and the length of time of this concentration governs the intensity of suffering. In children the vision is never fixed on any point for a length of time, consequently the symptoms are not brought on. In young adults who have acquired the habit of hard study and constant close work, it occurs frequently, and we will find in most cases that it commenced with the time of their beginning to work or in a very short time after. The muscle tests should be applied to every case that came to the oculist for refraction work, and when he finds these deviations existing, he should resort to the radical relief, partial tenotomy.

Dr. F. W. McRae of Atlanta, read a paper entitled

STONE IN THE BLADDER, WITH REPORT OF CASES.

He dealt with the etiology, symptomatology and treatment of stone in the bladder, purposely avoiding extensive details and references to authorities. The chief predisposing causes were defective digestion and assimilation, due either to improper diet, to a preponderance of solid over liquid ingesta, or to too high living coupled with insufficient exercise and imperfect oxidation. There is an excess of the solids of the urine. These are only predisposing causes, and others such as mucus, pus, etc., due to inflammatory conditions of the urinary mucous membrane, must be present before stone in the bladder will result. A history of nephritic colic not followed by the expulsion of the gravel through the urethra, would naturally lead us to suspect the formation of stone in the bladder when followed by irritation of that viscus. Only when the stone can be felt by the

searcher and the characteristic click elicited are we sure of the presence of calculus in the bladder. In one of the cases which the author reported the symptoms were characteristic of stone in the bladder, although no stone was found. The operation was a brilliant success in relieving the patient of a most violent cystitis of long standing. The author then dealt with the methods of treating stone in the bladder, and said that no method had so wide a range of applicability and as low a death rate as litholapaxy (Bigelow's operation). He had had, however, no personal experience with it, as the cases thus far presenting themselves to him were such as might be best treated by other procedures.

This operation offered much the best results except in very young children, very large or very hard stones, or where there was coëxisting tight organic strictures or enlarged prostate of such character as to prevent the introduction of the lithotrite, or where there was a violent cystitis associated with stone. For large stones associated with prostate or vesical tumors the high operation was undoubtedly far superior to the perineal operations. Small stones associated with stricture of the deep urethra or violent cystitis were best treated by the median operation. Nor was the lateral operation to be entirely set aside for the now more popular operations of litholapaxy and suprapubic lithotomy. Each of these operations had its proper field of usefulness, and it was only by a careful selection of the methods of treatment that the best results were to be obtained.

Dr. W. R. Googe of Abbeville, reported a case of fracture of the skull, with protrusion of the brain substance and removal of same.

THIRD DAY—MORNING SESSION.

Dr. J. B. S. Holmes of Rome, read a lengthy paper on
THE TECHNIQUE AND AFTER-TREATMENT OF OVARIOTOMY.

The author offered the paper as an *exposé* of the methods adopted and successfully used by him in his abdominal work. He submitted the paper with the earnest hope that it might elicit a full and free discussion from all those interested in this line of work. By such discussions our methods may be compared and those adopted that promise best results to our patients. No one could truthfully say that in every particular his method was the best. While we might in the main agree, yet upon slight and seemingly indifferent details might hinge the successful issue of our cases. He stood ready and willing to take up any suggestions, from his brother surgeons, if he could get better results by so doing. The author then took up each step *seriatim* of the technique and after-treatment.

Dr. Frank M. Ridley of La Grange, then delivered the Orator's Address. He selected for his subject "Woman's Relations to the Practice of Medicine."

Dr. M. B. Hutchins of Atlanta, contributed a paper entitled

MECHANICAL TREATMENT OF SOME SKIN ANOMALIES.

The author dwelt upon some of the various mechanical means of removing anomalies of the skin. The destruction of superfluous hairs, of moles, birth-marks, and the various simple growths of the skin were described. In 1879 Dr. Michel of St. Louis, successfully employed electrolysis for the destruction of the hairs in trichiasis. Dr. Hardaway, a dermatologist of the same city, followed the idea in the treatment of hypertrichosis. Various dermatologists had since reported upon its successful use. Hair upon the lip and face of women afforded the usual field of operation. Three to eight cells of a galvanic battery were used. For the past two years Dr. Hutchins had used some "Law" cells put together by himself containing as the fluid an aqueous

solution of sal ammoniac. For the destruction of hairs five of these were sufficient, though they had not been filled in two years. Seven of these cells sufficed for ordinary moles. To the negative pole a pencil-shaped needle holder containing a number eight or twelve ordinary sewing needle is attached, while the positive pole is provided with the usual sponge electrode. The needle is attached to the negative pole for the reason that electrolysis through the positive will leave a black dot at the point of insertion of the needle. The author prefers the needle holder having a spring for opening or closing the circuit, as this leaves the entire control of the circuit to him, the patient steadily holding the well-wetted sponge electrode in one hand instead of having to open and close the circuit by letting go or catching hold of the sponge. The needle is carefully inserted into the hair follicle, parallel to the root, until slight resistance, the bottom of the follicle and the seat of the hair papilla, is felt. The circuit is then closed and the current allowed to pass until a frothy substance the size of a small pin head fills the follicle, and a small area of blanching appears around the needle. If the needle has followed the course of the hair root and remained in the follicle, the pain is less than when the root sheaths are pierced, and the frothy substance is more abundant. If the hair is easily pulled out it is reasonably certain that there will be no regrowth, but if it pulls out with difficulty or breaks off, the current must be immediately reapplied. A pair of forceps made for the purpose are used to extract the hairs.

Dr. Hutchins then reported several interesting cases which he had treated successfully by electrolysis.

The following officers were elected:

President, Dr. W. H. Elliott, Savannah; First Vice-President, Dr. G. T. Miller, Americus; Second Vice-President, Dr. H. McHatton, Macon; Secretary, Dr. Dan H. Howell, Atlanta; Treasurer, Dr. E. C. Goodrich, Augusta.

The next annual meeting of the Association will be held in Atlanta.

DOMESTIC CORRESPONDENCE.

Revision of the Code of Ethics.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Dear Sir:—THE JOURNAL of April 22 contains a letter typical of the views of those who desire the abrogation of the Code of Ethics. It would be a waste of time to further review the specious pleadings of the pseudo reformers whose propositions tend so clearly to retrogression and to immoral practices of many kinds. It suffices to say that no better evidence that the Code does not need revision could have been adduced than by the letter in question. That there is great need of the stringent but wise provisions in such cases as advertising, of patenting appliances, etc., by physicians is rendered more evident from the condemnation of the related sections by those who wish to violate the Code, and who, for this purpose, demand the sanction of the profession.

The frequent assertions by dissenters that the Code is verbose, that its language is antiquated, that its provisions are useless and inhuman, that it is not in accord with the spirit of the age, and that it is a dead letter, show the extreme weakness of their cause. Their indulgence in harsh and improper language is another evidence of a bad cause. They do not seem to realize that invectives are not arguments, that accusations are not proofs, and that assumptions are not demonstrations. They have been repeatedly challenged to argumentation, but they have uttered nothing bearing the least semblance of an argument. They have absolutely failed to show cause why the Code should be altered.

If the reader takes pains to study Dr. Flint's commentaries on the Code, published by D. Appleton & Co., of New York, he will find an ample refutation of each and every objection stated in the letter to *THE JOURNAL* of April 22. The Code, based as it is on the maxims of many sages, was written for all time, and the teachings it inculcates can be condemned only by evil-doers. Its admirably pure and exact language gives it a particular charm which delights the scholar, and serves as a model of excellence for the rising generation of medical writers. Therefore, let the misguided members who are striving to destroy this monument of the wisdom of good and true men pause and reflect before taking final action; let them examine the Code diligently, maxim by maxim, section by section, sentence by sentence, word by word, and let them frankly and honestly say if they find an expression which can justly be condemned; if not, let them cease their unbecoming agitation, and employ their best thoughts to further the interests of science and of the Association whose laws they are pledged to obey as a condition of membership.

A CONSERVATIVE MEMBER.

TO THE EDITOR OF THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Dear Sir:—We are glad to hear a nineteenth century voice from California. I, for one, can honestly concur in what he has written, living as I do near a medical center of some importance. What can we lesser lights do when the president of one of the best (if not the best) colleges in the State can trephine a case for a homœopath? Another who is a professor in the same school, and has had the honor of being chairman of one of the Sections of the American Medical Association, sending a nice little note to the dean of the homœopathic department of the University of Michigan, "who is a good friend of his," concurring in his opinion and advising him to follow the plan he recommended.

Another professor holding an important position on last year's committee of the American Medical Association, having a peculiar case with Dr.—whose sign reads Dr.—eclectic physician, etc.

Now the point I wish to make is this: Is it not unjust to keep the younger members to the Code, so that professors and presidents can get all the regular graduates' patients needing special treatment, and scoop in the irregulars also?

These instances are but as a drop in the bucket as regards the respect to the Code in this State. FAIR PLAY.

TO THE EDITOR OF THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Dear Sir:—The "Code" question is admirably epitomized in two letters published in *THE JOURNAL* of April 22.

A correspondent writing from San José, Cal., with evident sincerity advances in effect the following argument: "The Code is daily violated by men apparently respectable; therefore, the Code should be repealed."

In this benighted commonwealth of Pennsylvania, Mr. Editor, when, not long ago, men high in political station and prominent in the church were found to be guilty of forgery and embezzlement, we did not either strike out the eighth commandment from our copies of the decalogue, or repeal the criminal code of the State. We sent the highly respectable criminals to the penitentiary.

While among those opposed to certain provisions of the Code or to any code, are many who are actuated by the highest motives, I fear that all who shelter themselves behind these pure-minded men are not equally unselfish. As to these latter, "A Kentucky Member" hits the nail squarely on the head. Even if the Code should be repealed, he intimates honorable physicians "intend to keep it in spirit and letter. If it does not suit others, we pity their

depravity and hope they will leave us alone, and 'roost' with their own kind." That sums up the situation.

One other point seems pertinent. Many members are under the impression that the reports of the committees on Revision of Constitution and Revision of Code, are to be finally acted upon at Milwaukee. Article VII of the Constitution of the American Medical Association, however, provides that propositions to amend or alter shall be made at an annual meeting and be acted upon at the following annual meeting, a three-fourths vote being necessary for adoption. A recommendation to revise is not such a specific proposition to amend as is contemplated by that article; and hence, the reports of the committees will have merely the same parliamentary status, as a proposition to amend made by an individual member. They can be submitted at Milwaukee but cannot be legally acted upon until the following meeting. Most respectfully,

SOLOMON SOLIS COHEN.

Philadelphia, April 24, 1893.

TO THE EDITOR OF THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

I presume that much valuable space in your *JOURNAL* will be wasted in discussing the revision of the Code. Allow me to waste a little in commenting upon Dr. A. C. Simonton's article in the April 22 number of *THE JOURNAL*.

The Doctor says twice in his communication that the *old Code is harmless*. Now, this is saying more for it than can be said of any article you have published condemning the Code (your editorial on Professional Unity to the contrary notwithstanding). The Doctor objects to flagrant violations of the Code. Especially to the *free* dispensaries, medical colleges and hospitals, and intimates that if the "old dilapidated, antiquated, ancient relief of ignorance and superstition" Code was enforced it would *save the profession thousands and millions of dollars annually*. If this is true, and I do not doubt it, why should the profession be in any hurry about changing the Code, much less to give it up entirely? A harmless code that will save the profession thousands and millions of dollars annually, it seems to me is just the kind of a code we need.

The Doctor would like a code which would allow specialists special rights, forgetting that knowledge acquired in any special branch does not alter the relations that physicians sustain to each other; because A or B is more expert in the use of instruments, or better posted in the treatment of cancer, or has a position higher than C, he is not privileged to herald this superior qualification to the world through the columns of newspapers. According to the Code, this would be quackery, and I think, yes, I know that the "respectable specialist" who does this is a quack, however respectable he may be. "Equal rights to all and exclusive privileges to none," may not be a medical axiom, but it is a very good rule to apply to the profession. Respectable specialists and those who violate the Code can not be put in the same class; letting both into the same organization would not change their characters. The violator would keep up his evil practices, and a code that tries to unite quacks and physicians will be a dead code. Now, a word or two in regard to the proprietary man. The old Code men have no use for him (earthly). The true physician does not allow the charlatan to do the diagnosing and prescribing while he plays nurse. It is possibly an easy way to practice, but the sticklers for the old Code do not see fit to adopt this plan. We look upon the proprietary man as using borrowed glory; all his knowledge is borrowed except that which he uses to mislead the profession. Now does he know anything about the etiology of disease and when his nostrum is indicated? He has seen several medicines recommended

for a certain malady, and he imagines if they were all mixed and administered at the same time they would certainly cure; therefore, he makes his combination, sends a sample of it to some credulous doctor, gets his certificate, repeats this for a few weeks, and then he is ready to astonish the world with his wonderful achievements. He takes advantage of men in high position, and publishes their names in his circulars and fly sheets as having recommended his nostrum. Borrows a good man's name and reputation and speculates upon it; this being true, is it any wonder that the true physician despises him?

In conclusion, let me say that in all ages, rules regulating the conduct of men have been necessary and this necessity still exists, and the evil practices noticed by Dr. Simonton as occurring in the profession show that medical men still need these rules. If the old Code can be made more efficient, and the majority of the profession say revise it, I am a good enough Democrat to say, amen; but, if it is harmless and only needs enforcing, let the wise heads show us the best way to enforce it and we will be grateful.

Respectfully, W. P. HOWLE, M.D.

Oran, Mo., April 25, 1893.

Revision of the Code of Ethics.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

Dear Sir:—Am glad that one man—Dr. Simonton—has the "nerve" to speak his *honest* convictions on the revision of the Code.

We live in a progressive country, and a physician that has not the stability, integrity, and common sense necessary to conduct himself in a respectable manner before both the public and laity "will soon hang himself with his own rope" if you will give him time. I call to mind an example in a neighboring town: The gentleman (?) is an Association man in "good standing" and the leading members simply wink at his misdeeds and then do likewise themselves. He and they will come to grief in the end but not by the *Code*: oh no, for they are strong and loud-mouthed defenders of that "time-honored document."

Getting back to the subject, I wish to emphasize Dr. Simonton's statement that the Code is a "dead letter." I personally know a member of the American Association who breaks the Code both in spirit and in letter dozens of times yearly; yet he is extremely loud in his denunciation—just like some of the writers on Code revision—of Code revision. Why does *this* man object to Code revision? Simply because he now has an advantage over honest physicians. He has no scruples in the matter, yet he knows there *are* some men who are honest enough to obey it to the letter, thereby placing themselves at a great disadvantage. What student has not seen the scheming and conniving of some of the leading college professors to get their names in public print? Who that reads the daily papers has not seen the bulletin signed by Doctors So and So, "physicians in charge." What is that but advertising, from the standpoint of the Code? We could point out instances of this kind *ad infinitum*.

Now I come to the point that all the "JOURNAL" correspondents seem to dodge: The section on consulting with irregulars. I hold that that part of the Code prohibiting such consultations should be wholly stricken out. My reasons for this are several and conclusive, to my mind. The objection usually raised is that such consultations are doomed from the start from the very fact that one party to the consultation is an irregular. No matter if he—the irregular—uses identically the same remedies as ourselves, we refuse to meet him in the interest of our patient simply because he wears the brand "irregular." Right on top of

this, we as regulars are very seriously taught to use *any* and *every* agent that is of benefit in the alleviation of suffering. That is the foundation of our regularity! Yet on the face of this let an irregular suggest a remedy of which we are not familiar and we at once say "it is of no account for *us* possess all that is good in medicine." The very moment we make such an assertion we become irregulars in every sense of the word. Do we not say we will use *anything* that is beneficial in the healing of the sick? The Code says we can not use anything used outside of the regular profession. "Consistency, thou art truly a jewel." A few years since at a medical gathering in California, a member got up and offered a resolution prohibiting the use of cascara sagrada, simply because its medicinal virtues were brought to light by an irregular. Reader, would you believe it? they passed that resolution. If one of that body of men was my family physician I would certainly take the advice of the maxim: *Non fur mos il medico tuo crede*. Do any of us regulars use cascara to-day? To use a common slangy expression "I should smile and say we do."

I know an irregular who does considerable surgery and does it in an artistic—not scientific—manner, and the neighboring regulars knowing of his skill often call him in consultation for the simple reason that he can do the work better than they can. Now this being the case *i.e.*, his possession of superior skill, why *should* he not be called to give the patient the benefit of his superior knowledge? Is not the patient footing the bill? If so, is he not the one to say who should and who should not administer to his wants? That one reason alone would settle the matter in my mind. It is none of my business who the patient employs to assist me in a case so long as he pays the bill and employs a physician. Oh, but says one "you lower your dignity and you do this and do that, and its not the money involved that we look at, but its the sacrifice of principle." I hold that it *is* the "money involved" that is looked at in nine out of ten of these cases. You are just afraid that if you recognize the irregular as a physician he will divide the shekels of the community with you. I look at the money and so do you. I think it best that we should get it in a legitimate manner though, and give the patient satisfaction. Take all remuneration from the profession and see how many will desert the ranks. As for myself would be compelled to do so; yet my motives are not all financial. Far be it; for I do my best to relieve suffering and lift the fallen; yet with all that, I have money in view. Force of circumstances—poverty compel this; yet the Code says if you have a case in a family that desires an irregular in consultation you should retire, giving the patient to understand that you will have nothing to do with such an "animal," thereby losing the fee and good will of your patient, or in other words "cutting off your nose to spite your face."

As to such members of the Association as "A Kentucky Member" I have to say that he is a century behind the age in which he lives. When he talks of sending the men of whom he speaks to "roost" as he calls it, he speaks disparagingly of men who are so far above him professionally that comparison seems ridiculous. He had better get a copy of "Esop's Fables" and bide himself to the hills of Kentucky and spend the remainder of his days studying antiquated fables from the brain of a darkey, intended for the guidance of people thousands of years ago.

The arguments of "A Conservative Member" that the Code was founded on the writings of the learned Dr. Percival and that it consists of elegant phrases and contains good advice and can do no harm (?) etc., count for nothing. We have proved that it does do harm. "Conservative Member" lays great stress on the fact that Percival was an "erudite and scholarly" man. What if he was, does that make him an

infallible guide in this day and generation? Scholarship usually denotes wisdom; but who has not seen the profound scholar whose judgment was far inferior, so far as the government of an association of men is concerned, to the progressive, active man with an educational training that hardly goes beyond the high school of his native village? From the tone of "Conservative Member's" articles that have been appearing from time to time I take it that he is capable of obeying the promptings of the mind of a gentleman—which I take him to be—without being goaded to duty by the lash of a taskmaster—Code of Ethics. If he can dispense with the Code—which I think he can—why can not he allow others the same privilege? He will probably answer that we have unscrupulous men in the profession that need curbing. My answer is, curb them! Do I need a set of written rules to tell me when to ignore an evil doer? I think not. We are a practical people and have no time to fritter away on superfluous nonsense. In conclusion I wish to say that *gentlemen* do not need a written Code; but if we *will* have one, let it be put in harmony with the progressive men that it is intended to instruct. It need not instruct the laity for the laity never heard of a Code. I never in my life met but one man outside of the profession that knew that there was such a document in existence. PRACTITIONER.

"The Great Patent Regulator," the Code of Ethics (No Pun).

TO THE EDITOR OF THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Dear Sir:—I have just finished reading the correspondence by Dr. A. C. Simonton of San Jose, Cal., and most thoroughly agree with all he has said in regard to the revision of the Code of Ethics. But I am a little surprised that his logical mind did not mention the illogical position taken by the Code on the subject of patent rights and copyrights.

Every one knows that there is but small difference between a patent right and a copyright; morally there is no difference, one protecting the holder in the shape of an instrument, and the other in the contents of a book, consequently it should be equally derogatory to professional character for a physician to hold either. If an individual may, without committing an unprofessional act, protect his writings by a copyright, what law of morals makes it an act that is derogatory to professional character to protect his invention by a patent right? It seems to me that the bare statement of the question is against the present Code of Ethics. Yours truly,

THOS. F. RUMBOLD.

San Francisco, April 26, 1893.

NECROLOGY.

DR. GEORGE CHEYNE SHATTUCK of Boston, a notable and esteemed physician of the old school, died of heart disease on March 22, 1893. His father, bearing the same name, also a physician was a resident of Boston at the time of this son's birth, about 1813. By the time the latter came of age he had gone through Harvard College, had spent a year in the study of law, and was in his last year at the medical department in Boston. At Harvard he was the classmate of Wendell Phillips, Motley, Shurtleff and others, many of them physicians of note and long life, but few of them survivors of Dr. Shattuck. He became a member of the Massachusetts Medical Society in 1836, her anniversary orator in 1866 and president in 1872. He was president of the Boston Medical Benevolent Society in 1877. His connection with the American Medical Association dates from the first convention in 1847. From 1855 to 1874 he was identified with the Harvard Medical School, in the professorates of clinical medicine and theory and practice. He was the

first to hold the clinical chair in that institution, and that was less than forty years ago. He was dean of the medical school for a number of years. He was one of the visiting staff at the Massachusetts General Hospital for thirty-six years, beginning in 1849 at the time of the resignation therefrom of Dr. Oliver Wendell Holmes. He was a man who devoted much thought and time to church and educational interests. He was the founder of St. Paul's School at Concord, N. H., and gave material assistance in the upbuilding of a similar establishment at Faribault, Minn. Although a man of firm convictions in religious matters, an unfailing charity marked his dealings with men of other beliefs. He was an honorary fellow of the Philadelphia College of Physicians and of the Paris Society for Medical Observation.

DR. SAMUEL LOGAN of New Orleans, La., professor of surgery at the Tulane University, has died in his sixty-second year. He was descended from a Scottish family, resident in South Carolina during three or more generations. He was a graduate in arts and medicine of the State University at Columbia and the Charleston Medical College; taking his M.D. in the class of 1853. In 1857, he was appointed demonstrator of anatomy at his *alma mater*, and from that time continued, with only brief interruptions, a long career as medical teacher in the colleges of his native State, of Virginia and Louisiana. For three years, from 1867 to 1870 he took the subject of surgery in the New Orleans School of Medicine, which became extinct in 1870, or shortly after. In 1872 he accepted the chair of anatomy and clinical surgery in the University of Louisiana medical department, holding that professorship thirteen years. About four years ago he succeeded the late Dr. T. G. Richardson to the chair of surgery. He was visiting surgeon to the Charity Hospital. He was ex-president of the State (Louisiana) Medical Association, and ex-vice president of the American Medical Association. Dr. Logan edited Geddings' surgical text book. He was for a short time one of the editorial staff of the *New Orleans Medical Journal*. During the war, he rendered good service in the Confederate army as medical director and inspector of hospitals. His membership in the Association dates from 1869.

BOOK REVIEWS.

DISEASES OF THE SKIN, their description, pathology, diagnosis, and treatment with special reference to the skin eruptions of children. By H. RADCLIFFE CROCKER, M.D., London. Second edition, revised and enlarged with ninety-two woodcuts. Philadelphia: P. Blakiston, Son & Co.

Crocker's work has already made and sustained so enviable a reputation as one of the leading works on diseases of the skin that further eulogy would be a work of supererogation. The present revised addition is more complete and scientific than the original. Due attention has been given the newer remedies and bacteriological researches in their bearing upon dermatology. The work in short is complete and thorough in all its details. The name of the publishers is a sufficient guarantee of the quality of its make up.

HUMAN MONSTROSITIES. (Part iv). By BARTON COOKE HIRST, M.D. and GEO. A. PIERSON, M.D. Phila.: Lea Bros. & Co.

We have before us the fourth and last part of the latest and best work on human monstrosities. This completes one of the masterpieces of American medical literature. Typographically and from an artistic standpoint, the work is unexceptionable. In this last and final volume, is presented the most complete bibliography of deratological literature, extant. No library will be complete without this magnificent work.

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SATURDAY, MAY 6, 1893.

HYGIENIC MEASURES IN RELATION TO INFECTIOUS DISEASES.

The prophylactic treatment of the infectious diseases as practiced generally by public departments and institutions, by physicians, and by laymen leaves much to be desired even at this time when our knowledge concerning the mode of spreading of these diseases is so far in advance of that possessed only a few years ago. Public health authorities in various parts of the country are many years behind the time in their methods of dealing with the infectious diseases. The most flagrant violations of fundamental rules in regard to the prevention of the spread of these diseases are continually practiced in the majority of the large, general hospitals of the great cities, and if we should follow the general practitioner on his rounds among his patients we would undoubtedly meet with many evidences of neglect and omission in regard to the enforcement of proper rules and regulations in cases of infectious maladies.

It is gratifying to note the little book by NUTTALL on "Hygienic Measures in Relation to Infectious Diseases," in which is brought together the more important and necessary points of the information we possess in regard to the subjects of disinfection and prevention, as they are applied to the various infectious diseases. If we look over the pages of this book and observe the various directions and rules laid down as preventive measures and then reflect upon the actual condition of affairs as they can be best studied in the large cities, it will be seen that the general statements made at the commencement of these lines are very mild and temperate, and yet these measures referred to are recognized by all as correct and proper, and their adoption generally has been spasmodically urged upon the public authorities and institutions for some time. For instance, public institutions for disinfection should exist in every com-

munity and should be in the charge of competent, intelligent men for the purposes of properly disinfecting infectious clothing, bedding, and other articles from hospitals, and private dwellings; articles which we know positively cannot be completely disinfected without more or less elaborate apparatus in the charge of trained men, and yet in how very few instances have such necessary institutions been established. Look at the work of disinfection as carried on by the inspectors of the average health department in the large city, and then tell us what they possibly can accomplish with their crude and imperfect methods carelessly applied by ignorant persons? What precautions are observed in transferring patients with infectious diseases to hospitals? In the majority of large cities the same ambulances or police patrols are used in that instance as are used for all the purposes that such vehicles are employed, and a properly constructed, oil-painted easily disinfected special vehicle for the single object of carrying patients with infectious diseases does not exist but as an exception.

In how many hospitals can there be observed special departments for the reception and immediate care of the person and clothing of infectious disease patients? As a rule all patients are sent to the common examining room where the diphtheria and scarlet fever patients wait their turn side by side with those that are destined for the surgical and obstetrical wards; and the same wheel chair brings first a case of erysipelas or pulmonary tuberculosis, and then it goes back for one with scalp wounds or typhoid fever, perhaps, and may be all come in the same ambulance, and so on through the livelong day and night.

The dangers and shortcomings of the present absurd and inadequate public system of prevention of infectious diseases are too evident to require any particulars; they are known to the health commissioners, the city physicians, the hospital superintendents, but the system is continued month after month, and practically we have been at a standstill for some years; it requires the threatened invasion of Asiatic cholera to stir these men into activity.

If we go a step further and inquire into the extent to which disinfection and measures of prevention are carried out by the private practitioner in the various infectious diseases, it will be found that lax and imperfect methods prevail to an alarming degree. One particular disease may be mentioned which requires prompt and thorough measures for its prevention, tuberculosis, and to say that our methods in this respect are careless and loose is putting it mildly. It is our bounden duty to protect healthy individuals against this disease by every means in our power; in this case isolation is hardly ever practicable and every other method that tends to limit this dread disease should be rigidly enforced. The

sputum, the chief agent in spreading the disease must be immediately destroyed and otherwise treated according to the rules that now are familiar to all medical men. Tubercular individuals should never be permitted to sleep in the same bed with healthy persons; they should have special eating utensils which should be boiled after using; they should not be allowed to engage in work about dairies and places where the preparation of food is carried on, as for instance in restaurants. Tuberculous cattle should be slaughtered and the possible spread of the disease in stables, prevented by proper stabling. The mere mention of these rational and necessary measures of prevention of the single disease, tuberculosis, all of which are quite thoroughly described in NUTTALL'S book, will serve to bring to mind the almost criminal negligence and the astounding carelessness that prevail in this respect among medical men, institution officials, and the public in general. In how many jails, penitentiaries, insane hospitals and similar institutions are the necessary measures for the prevention of tuberculosis properly and conscientiously carried out? What have the local and State Boards of Health ever done in this particular, very important matter?

These brief and fragmentary considerations show that the hygienic measures in relation to the infectious diseases as practiced in general at the present day fall far below the requirements. The entire public service in this respect must be revolutionized from beginning to end. The health department of every city must conduct its system of disinfection upon principles that are based on a knowledge of how the various diseases are spread and of the peculiarities of the various specific infectious agents as far as they are known; the operations of these departments should be carried on by trained and intelligent persons working with modern means, and there should be scientific men attached to every such office to direct and supervise this work in which minutie and detail are of as great importance as in the aseptic surgical operation.

The public in general should be instructed as far and as frequently as possible in regard to the nature and mode of spreading of infectious diseases and the large penal, reformatory, and charitable institutions must be thoroughly reformed as regards their methods of dealing with such diseases as tuberculosis. The instruction in hygiene given the students in our medical colleges should be as thorough and as practical as the manifest and constantly increasing importance of this subject demands; if that were done, the Chair of Hygiene would justly become as important as any in the curriculum.

In the meantime, let us hope that sooner or later the State will change its suicidal policy and build and maintain institutes and laboratories for the

study of the cure and the prevention of the infectious diseases among man and animals and thus place this country on an equal footing in that respect with the rest of the civilized world.

HEALED OR ARRESTED PULMONARY TUBERCULOSIS.

LAENNEC concludes his classical statement with reference to the possibility of cure of pulmonary tuberculosis, and the changes that occur in arrested foci, as follows: "I think that the cure of consumption ought not to be looked upon as at all impossible, in reference either to the nature of the disease, or of the organ affected." Since LAENNEC'S time observations of all kinds have accumulated showing that, in a comparatively speaking very large number of instances of pulmonary tuberculosis, arrest and even permanent cure of the destructive process ensued. Quite a number of systematic studies of the evidences of healed tuberculosis have been carried on by men in position to constantly examine a large number of bodies of individuals that died from sudden or violent causes as well as otherwise, and quite a lot of statistics bearing upon this interesting subject have accumulated during recent years. Thus VIBERT found that seventeen out of 131 persons dying from sudden or violent death whose bodies were brought to the Paris morgue, showed evidences of cured tuberculosis; SIDNEY MARTIN found forty-two cases of healed tuberculosis of the lungs in 445 post-mortem examinations; HEITLER found 789 cases of obsolete tubercle in 16,562 autopsies, *i. e.*, 4 per cent.; FOWLER found arrested pulmonary tuberculosis in 177 out of 1,943 sections at the Middlesex Hospital. Incidentally it is very curious and also interesting to note that all these last three observers found the most frequent cause of death among the instances of healed pulmonary tuberculosis to be carcinoma; the relation between carcinoma and healed tuberculosis is consequently very striking and ought to merit further clinical as well as anatomical study. H. P. LOOMIS found in 763 persons dying of a non-tubercular disease seventy-one, or over 9 per cent., which presented pulmonary changes characteristic of healed tuberculosis. These statistics abundantly indicate that, from the standpoint of the morbid anatomist, the dread disease of pulmonary tuberculosis presents itself as quite amenable to arrest and cure, at least much more frequently so than the general impression of practitioners would seem to warrant. It would be of great value if this question could be studied from the clinical side as well, so that we could learn more definitely and precisely the exact conditions and facts with reference to those in whom the disease is arrested, but this is of course almost impossible except in isolated instances, because of the length of time that inter-

venes between the clinical manifestations of the disease, and the death and autopsy.

Since LAENNEC's time it has been known that the histological processes which result in the arrest and cure of pulmonary tuberculosis are embraced in a general way under the terms fibrosis or fibroid induration; an area is formed of so-called pigment induration, scattered through which or in the center of which are calcareo-caseous masses, and this area replaces the focus of typical tubercular granulations. The walls of healed cavities consist of dense, thick, pigmented fibrous tissue, and the more or less retracted space may or may not communicate with a bronchus; usually there are pleuritic adhesions and puckering in the pleural surface of the lung over the healed tubercular district, which in the vast majority of instances is found in the apex. It was generally thought that in the majority of cases of healed tubercular areas in the lungs the tissue composing the areas may be regarded as free from tubercle bacilli; Loomis, however, found that in three out of twelve cases of apparently arrested tuberculosis, inoculation experiments with rabbits showed that bacilli, or more likely their spores, were still present in the tissue. This demonstration consequently shows that the disease may remain latent for an indefinite length of time, and it suggests the possibility that bacilli might escape from such areas during life and give rise to acute tubercular processes in various parts of the body which it might be justifiable under certain circumstances to trace to the apparently healed pulmonary focus. It would seem very advisable that this subject of healed or arrested pulmonary tuberculosis be studied still more in the direction indicated by Loomis; all foci that look like areas of healed disease should be studied experimentally by means of inoculations into suitable animals, because that is the only method of demonstrating positively the absence or presence of active, pathogenic germs. It would be interesting to know, for instance, whether the bacilli present in areas of slaty, fibroid induration are as virulent as bacilli from foci where destructive changes are going on; perhaps novel facts bearing upon the conditions that result in the arrest of the process might be obtained in this way. It would also be of great interest to study the condition of the lymphatic glands at the root of the lungs in the cases of arrested phthisis, with reference to the absence or presence of tuberculosis or tubercle bacilli, so as to show what bearing the state of affairs in the glands might have upon the development of tubercular processes in other parts of the body of those who present healed pulmonary foci, because HEITLER found in his statistical study that 106 of his 789 cases of obsolete tubercle died from tuberculosis elsewhere than in the lungs.

1893.

This year of our Lord is an eventful period in American history. The project of a great Columbian Exposition that should be twice as large and twice as imposing as any of its predecessors, was conceived and has been created. Invitations were extended to the people of all the nations of the earth to come, see and enjoy the occasion with us. These bids have been accepted, and to-day America is the World's host.

Not long ago Imperial rulers made inquiry as to whether our pretensions were fables or facts. Searchlight revelations indicated that the United States is a first class Nation, and as such might be associated with by other nations, and for the first time her diplomatic corps became accredited Embassadors.

An invitation to other nations to participate in a Naval Review on our eastern shores brought to Hampton Roads the finest and best of modern war vessels. From thence the squadron steamed to New York to pass in review before our citizen President. This review had in it the greatest concentration of naval power that has ever at any time been brought together. We suspect the representatives of other governments did not regard the American ships as second class.

This week the Columbian Exposition swings its doors and gates wide open, and if the Queen of Sheba or any of her sisters, brothers, uncles, aunts or cousins put in an appearance an opportunity will be given them to see sights, the like of which they have neither heard nor dreamed of. The Columbian Exposition will be an educational object lesson to all its visitors. More, it will be an era of date in all fields of science, art, education, religion and industry.

This being true, what may be said of medicine? That it is keeping step with collateral sciences and arts, as shown in manifest evidences of a better knowledge of many diseases, their prevention and treatment.

That there is a more general recognition of the public functions of physicians by Legislators and Governors. So that hereafter, physicians will be regarded as a potent factor in the body politic of the State and Nation.

* * * * *

In educational lines it may be said that graded three and four year courses for medical students are a definite requirement in nearly all American medical colleges. Increased laboratory study and work has compelled an extended curriculum, which has obliged teachers to think and consider ways and means by which the student may be enabled to get through his course of professional study within the present extended limit. This seems to be solved in the system adopted in the new Chicago University, by which courses of study are divided into what is

designated as minors and majors of time, within which are included a certain number of recitations. A college year is a major of time in which a recitation of one hour every day in a given course is completed at the end of six months.

The major courses are subdivided into minor courses which, when complete are taken within three months, so that a student who is in arrears in a study or course has an opportunity to make up time by taking minor courses, two minors being equivalent to one major.

This system has been adopted in one of the medical schools of Chicago by which the faculty gives the regular graded course of a major, beginning in September and ending in March, and a minor beginning in March and ending in June. Thus the student receives one and one-half years' instruction within twelve months. The curriculum of the college is arranged as a four years graded course, by the system of majors and minors the classes are so subdivided that the student is enabled to complete the whole course and to take his degree at the end of three years. Within that time he has taken three major courses of six months each, and two minor courses of three months each, which together equal the fourth major course. The system is a good one, saves time and money to the ambitious and diligent student and makes of the medical professor a professional teacher.

The system paves the way for scholarships, fellowships, lectureships and special professorships. It opens avenues for endowments and benefices. We hail its coming as a fortuitous omen. Everything that is new and promises to be useful to the medical profession is desired, more, it is wanted so very much that it must be had.

* * * * *

This year of Grace will also be memorable as the one in which was submitted to the American Medical Association a revised Constitution and Code of Ethics. As to the wisdom of these revisions, particularly the latter, much is being said in the pages of *THE JOURNAL*, in which there will be found many variations of opinion, all honestly expressed, and equally entitled to a hearing. Our own regret is that a number of writers seem to think it wisdom on their part to appear to their fellows over an anonymous signature. There is nothing in such a discussion to call forth acrimony, personal reflections or bitterness of statement. The feeling one for another should be of fraternal respect and deference, remembering that men's minds are as unlike as their faces. It is true we all have a similar education, obtained in similar colleges for similar purposes and have an identical literature. It is also true that all physicians do not live and practice their profession in similar environments, nor is it possible to always

make observations through similar spectacles. In the discussion of this subject that seems to be so vital to the lives and happiness of nearly all medical men let no man forget that anathemas, personalities, charges and insinuations only count as against himself individually and the cause he advocates. It may also be well to remember that whatever may be said, there is more to be told on the other side, also that silence may be a golden salve that is shielding and healing a festering sore. The occasion should partake of the tolerance of views and lack of personal vindictiveness so singularly characteristic of the conduct of our last Presidential election campaign. Let this tolerance be exercised because of the wide diversity of opinion known to exist in the profession, among men who are equally well educated and intelligent, equally honest and honorable, equally high minded and just, and equally jealous of the good name and fame of our calling.

Because of this known wide diversity of opinion by so many men, it was deemed wise at the last meeting of the American Medical Association to appoint a committee to revise and present a new Constitution and Code of Ethics.

The revision of the Constitution has we think been made with care and good judgment. Every section and paragraph received the expressed approval of every member of the committee, who are without exception capable and conservative men. We have confidence that the Code of Ethics will come from their hands to us in a form that will be acceptable to nearly all candid and right thinking men.

It is not generally known that some of the largest societies that are in affiliation with the American Medical Association and annually send to that body their quota of delegates, do not in their constitutions or elsewhere make any recognition whatever of the Code of Ethics, or require their members to subscribe to an acceptance of the Code.

An illustration or two: The Illinois State Medical Society which has within the present year almost if not quite doubled its membership roll, does not in any way recognize the Code of Ethics or require its members to do so. Neither does the Chicago Medical Society with its nearly eight hundred members. In the same category will be found the Ramsey County Medical Society (St. Paul), with its large membership. So far as we know there is not a medical society in Chicago that in any way recognizes or makes mention of a Code of Ethics. And yet there are in Chicago and in St. Paul as able and high toned practitioners of medicine as may be found in any city. Men who are professionally pure minded, and as absolutely free from all inclinations to evil courses as may be found on the face of the earth.

These men are actively at the head of all good work in professional affairs in city and State, and are as far from being stimulants of strife and professional anarchy as the sainted FLINT, GROSS, BOWDITCH, RICHARDSON or WOOD.

Does not this condition indicate in words louder and more imperative than we can express a necessity for a revised Code in order that the American Medical Association may be consistently assimilative and have a unity of purpose that will enable it to become a greater power than it now is for the weal of American medicine.

CENTENARY OF THE DEATH OF JOHN HUNTER.—The Royal College of Surgeons of England, will celebrate a jubilee of the Fellowship on July 5, of this year, by means of a special conversation meeting. And as this is the centenary of John Hunter's death it has been arranged to commemorate the labors of brightest intellect by an exhibition of artistic and literary objects connected with him and his period, such as pictures, books, manuscripts, furniture and instruments. These will be in addition to the relics already in the possession of the College. Many possessors of Hunterian relics have offered their property for the exhibition.

ASSOCIATION NEWS.

OPHTHALMIC SECTION, AMERICAN MEDICAL ASSOCIATION.

List of papers announced for the Milwaukee meeting:

1. Pannus and its Treatment by Digestive Ferments, by J. A. Lydston, Chicago.
2. Hypertrophic Conjunctivitis and its Treatment, by Cornelius Williams, St. Paul.
3. Phlyetenuar Ophthalmia, by Dudley S. Reynolds, Louisville.
4. The Total Correction of Refractive Errors, by W. F. Coleman, Chicago.
5. *a.* History of a Case of Successful Extraction of a Piece of Steel from the Vitreous by aid of the Electro-Magnet. *b.* Study of a Case of Hemorrhagic Glaucoma with Microscopic Sections, by Chas. A. Oliver, Philadelphia.
6. Glaucoma, by L. F. Love, Philadelphia.
7. Unilateral Neuro-Retinitis, with report of cases, by B. L. Milliken, Columbus, O.
8. Tobacco Amblyopia, by F. Dowling, Cincinnati.
9. Sympathetic Ophthalmia, by A. Hobby, Iowa City.
10. A Study of the Etiology of Blindness of pupils in the various State Asylums, by G. F. Keiper, Lafayette, Ind.
11. Skin grafting in Malignancy of the Eyelids and Orbit, by Flavel B. Tiffany, Kansas City.
12. Treatment of Granular Lids; Exhibition of Instruments, by C. B. Blubaugh, Parkersburg, W. Va.
13. Exostosis of the Orbit, by Robert F. Le Mond, Denver.
14. Some Rare Forms of Tumors of the Orbit and Eyelids, by J. Schneider, Milwaukee.
15. Strabismus Convergens, when and how shall operate? by S. C. Ayres, Cincinnati.
16. Rapid Dilatation of the Lachrymal Sac, by S. L. Ziegler, Philadelphia.
17. Cataract Lenses, by H. V. Würdemann, Milwaukee.
18. Albinism of Eyes, by G. M. Gould, Philadelphia.
19. Commentaries on Diseases of the Lachrymal Passages, by H. Gradle, Chicago.

20. Posterior Sclerotomy as a Preliminary to some Operations for Glaucoma, by H. Gifford, Omaha.
 21. Two Cases of Brain Tumor, where Optic Neuritis was the only Positive Sign.—Autopsies, by E. P. Morrow, Canton, O.
 22. The Curvilinear Reflection of Weiss as a Pro-dromal Sign of Myopia, by B. Alex. Randall, Philadelphia.
 23. Intra-ocular Injections of various Antiseptics, by G. F. De Schweinitz and H. A. Hare, Philadelphia.
 24. Purulent Ophthalmia from the Standpoint of its Specific Microbic Cause, by A. Hinde, Chicago.
 25. Relation of Diseases of the Upper Air Passages to Diseases of the Eye, by J. G. Carpenter, Stanford, Ky.
 26. A Case of Sympathetic Neuritis after Evisceration, by F. C. Hotz, Chicago.
 27. Treatment of Nasal Duct Obstruction, by Casey A. Wood, Chicago.
 28. *a.* The Best Form of Rod and Rotary Prism tests with a new Phorometer; *b.* Classification of Diseases of the Eye in Hospital Statistics, by E. Jackson, Philadelphia.
 29. Squint and its Treatment, by J. A. Thompson, Kansas City.
 30. The Artificial Ripening of immature Cataracts, by B. Bettman, Chicago.
 31. Meningitis following Enucleation of the Eyeball, by S. D. Risley, Philadelphia.
 32. Legislation in the United States for the Prevention of Blindness, by L. Howe, Buffalo.
 33. The Results of the Use of the Electromagnet for the Extraction of Foreign Bodies, by C. Barek, Cincinnati.
 34. Quiescent Foreign Bodies within the Eyeball, by W. B. Johnson, Paterson, N. J.
 35. Some Practical Experiences with Muscular Anomalies, by T. E. Murrell, Little Rock, Ark.
 36. Persistent Spasm of the Accommodation relieved by Tenotomy of the External Recti, by A. R. Baker, Cleveland.
 37. Cataract Extraction in a Negro said to be 116 years old, by F. Trester Smith and B. F. Travis, Chattanooga, Tenn.
 38. The Practical Value of the Ophthalmometer in the Measuring of Astigmatism, by L. J. Lautenbach, Philadelphia.
 39. Pterygium—Presentation of Instruments, by A. Blitz, Indianapolis.
 40. Dendritic Keratitis, by W. H. Wilder, Chicago.
 41. Congenital Symmetric Dislocation of Both Lenses Upward and Outward, by L. H. Taylor, Wilksbarre, Pa.
- Papers without title promised by T. Y. Sutphen, Newark, N. J., and E. G. Gardiner, Chicago.

H. GRADLE, Sec'y.
65 Randolph St., Chicago.

PROGRAM—SECTION ON DERMATOLOGY.

1. The Scope of Dermatology, by L. A. Duhring, Chairman, Philadelphia, Pa.
2. Xanthoma Diabeticorum, with Microscopical Demonstrations, by S. Lustgarten, New York.
3. The Local Treatment of Psoriasis, by R. C. Longfellow, Cincinnati, Ohio.
4. Syphilis in its Relations to Herpes Progenitalis, by G. Frank Lydston, Chicago, Ill.
5. The Treatment of Pigmentations of the Skin, by John V. Shoemaker, Philadelphia, Pa.
6. Erythema Exfoliations Recurrens, with Specimens, by A. H. Ohmann-Dumesnil, St. Louis, Mo.
7. Dermatitis Herpetiformis, with Report of a Case, by John H. Duncan, St. Louis, Mo.
8. The Obliteration of Pigmentation on the Human Skin, with Experiments, by B. Merrill Ricketts, Cincinnati, Ohio.
9. On Erysipeloid, by Geo. T. Elliott, New York.
10. 1. Purpura Recurrens; 2. Points on the Nature of Eczema. By A. Ravogli, Cincinnati, Ohio.
11. Recurrent Zoster, by Joseph Grindon, St. Louis, Mo.
12. Ichthyosis in the Colored Race, and its Treatment, by Joseph W. Stickler, Lakewood, N. J.
13. On Familiar Forms of Syphilis, and the Difficulty of Diagnosis, by W. W. Tompkins, Charleston, W. Va.
14. Cases of Polymorphism in Syphilis Complicating Diagnosis, by W. F. Breakey, Ann Arbor, Mich.
15. On a Hyaline Papule Following Vaccination, by A. C. Mercer, Syracuse, N. Y.
16. Carbuncle, by W. O. Henry, Omaha, Neb.
17. Indigenous Leprosy in Louisiana, by Isadore Dyer, New Orleans, La.

18. Clinical Notes on Pemphigus, by Joseph Zeisler, Chicago, Ill.

19. An Untoward Effect of Arsenic, by Albert E. Carrier, Detroit, Mich.

20. 1. Notes on Feigned Eruptions; 2. The Use of Waxed Paper in Connection with Dermatological Practice, by L. Duncan Bulkley, New York

21. The Enlargement of the Subcutaneous Lymphatic Glands in Tertiary Syphilis, by D. W. Montgomery, San Francisco, Cal.

MISCELLANY.

SIGN YOUR NAME.

As thorough revision of the Code
Is present subject of discussion,
And incognito is the mode
Of certain ones of the profession
Who flood THE JOURNAL, week by week,
With lengthy matter from their pen,
That lose the force of what they speak,
When we find we can not know the men—
Sign your name.

If not ashamed of your position,
Or of the side on which you write,
Or either of your erudition,
Or that you shall appear less bright
Than certain other of your neighbors,
Who to this theme have given thought,
And by dint of toilsome labors
The question to an issue brought—
Sign your name.

The present age in which we live,
The bold, the brave and fearless man
Has no use for "Conservative,"
Nor yet for any other plan
By which his precious head to shield.
In case he should be so unlucky
As to meet defeat upon the field,
By "A Member from Kentucky"—
Sign your name.

Whenever, then, in a discussion
You wish to enter with the throng,
Or lead the van of the profession
With argument both good and long,
Have the courage of your conviction,
Cling the thought you would expand,
Be not timid in your position,
Stand steadfast, firm, be a man, and
Sign your name.

—W. H. HAUGHEY, M.D.

Battle Creek, Mich.

MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA.—Fortieth Annual Meeting will be held in the city of Raleigh, May 9, 10 and 11, 1893. Papers to be read:

Report on Practice of Medicine, by Dr. E. M. Summerell, Mill Bridge.

Report on Surgery, by Dr. J. P. Munroe, Davidson College. "Inguinal Hernia."

Report on Obstetrics, by Dr. J. H. Marsh, Fayetteville.

Report on Gynecology, by Dr. R. H. Whitehead, Chapel Hill.

Report on Materia Medica, by Dr. Thos. Stamps, Lumber Bridge.

Report on Therapeutics, by Dr. C. E. Hilliard, Asheville.

Report on Pathology and Microscopy, by Dr. W. T. Pate, Gibson's Station.

Report on State Medicine, by Dr. S. J. Montague, Winston. Cerebro-Spinal Meningitis, by Dr. Thos. Stamps, Lumber Bridge.

Report of Clinical Cases, by Dr. J. M. Hayes, Oxford.

Vis Naturæ et Vis Medicatrix Naturæ, by Dr. A. M. Ballard, Asheville.

Pneumonia, by Dr. J. N. Peace, Creedmore.

Appendicitis: Viewed from a Personal Standpoint, by Dr. J. W. Long, Randleman.

Diphtheria, by Dr. R. A. Patterson, Aurelian Springs.

—, by Dr. R. L. Payne, Lexington.

The Regimen and Treatment of Hyperchlohydric Dyspepsia.

(Before the Conjoint Session.)

The Necessity for Vaccination in North Carolina. Some of the Defects of the Country Asylum for the Care and Treatment of the Pauper Insane. By Dr. J. Allison Hodges, Wilmington.

The subject for the annual debate:—Rheumatism, by Dr. D. T. Tayloe, Washington.

Do NOT HESITATE, but at once apply for membership in the American Pharmaceutical Association. There is no initiation fee and the volume of annual proceedings alone is worth much more than the price of annual dues. Blank applications and full information can be obtained by addressing the chairman of the committee, D. H. M. Whelpley, 2342 Albion Place.

THE TWENTY-THIRD ANNUAL MEETING of the Colorado State Medical Society will be held in Denver, June 20, 21 and 22, 1893.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from April 22, 1893, to April 28, 1893.

Lieut.-Col. Charles C. Byrne, Deputy Surgeon-General U. S. A., leave of absence granted is hereby extended one month.

Capt. Wm. B. Banister, Asst. Surgeon, is relieved from duty at Washington Bks., D. C., and ordered to Ft. McIntosh, Texas, for duty.

Capt. George McCreery, Asst. Surgeon, is relieved from duty at, and ordered to Ft. Sidney, Neb., for duty.

Capt. Louis S. Tesson, Asst. Surgeon, is relieved from duty at Ft. Sidney, Neb., and ordered to Jefferson Bks., Mo., for duty. Par. 14, S. O. 89, A. G. O., April 21, 1893.

Capt. Wm. O. Owen, Jr., Asst. Surgeon, is relieved from duty at Jefferson Bks., Mo., and ordered to Ft. Bayard, N. M., for duty.

Capt. Edward T. Omegeys, Asst. Surgeon, is relieved from duty at Ft. Bayard, N. M., and ordered to Ft. Wadsworth, N. Y., for duty.

Capt. A. S. Polhemus, Asst. Surgeon, is relieved from duty at Ft. Monroe, Va., and ordered to report at Ft. Douglas, Utah, for duty. Par. 14, S. O. 89, A. G. O., April 21, 1893.

Capt. Wm. P. Kendall, Asst. Surgeon, is relieved from duty at Ft. Douglas, Utah, and ordered to Willets Point, N. Y., for duty.

Capt. Wm. F. Carter, Asst. Surgeon, is relieved from duty at Willets Point, N. Y., and ordered to Ft. Sill, O. Ty., for duty.

Capt. B. D. Taylor, Asst. Surgeon, is relieved from duty at Ft. Sill, O. Ty., and ordered to Ft. Bliss, Tex. Par. 14, S. O. 89, A. G. O., April 21, 1893.

First Lieut. Francis A. Winter, Asst. Surgeon U. S. A., is relieved from duty at Ft. Wingate, N. M., and will report in person to the senior commissioner of the International Boundary Survey Commission at Yuma, A. T., for duty, relieving First Lieut. Harlan E. McVay, Asst. Surgeon. First Lieut. McVay, on being relieved by First Lieut. Winter, will report in person to the commanding officer, San Carlos, A. T., for duty at that station, relieving Capt. Paul Shillock, Asst. Surgeon. Capt. Shillock, on being relieved by First Lieut. McVay, will report in person to the commanding officer, Ft. Wingate, N. M., for duty at that post. Capt. Marlborough C. Wyeth, Asst. Surgeon U. S. A., is granted leave of absence for one month on surgeon's certificate of disability, with permission to leave the limits of the department, to take effect when Asst. Surgeon Ware shall have returned to Ft. Supply, I. T.

Major Ezra Woodruff, Surgeon U. S. A., is hereby granted leave of absence for twenty days, to take effect after May 1, 1893.

PROMOTION.

First Lieut. Ogden Rafferty, Asst. Surgeon, to be Asst. Surgeon with the rank of Captain, from March 26, 1893, after five years' service, in conformity with the act of June 23, 1874.

OFFICIAL LIST OF CHANGES in the Medical Corps of the U. S. Navy, for the Week Ending April 29, 1893.

Medical Director J. H. Clark, ordered as President Naval Medical Examining Board.

Medical Director A. A. Hochling, detached as President Naval Medical Examining Board, and placed on waiting orders.

P. A. Surgeon L. L. von Wedekind, detached from U. S. R. S. "Wabash" and to the U. S. S. "Alliance."

The Journal of the American Medical Association

VOL. XX.

CHICAGO, MAY 13, 1893.

No. 19.

ORIGINAL ARTICLES.

RECENT ADVANCES IN THE TREATMENT OF DISEASES OF THE SKIN AND SYPHILIS.

Opening address of the Chairman of the Section of Dermatology and Syphilology, American Medical Association, Detroit, June 7, 1892.

BY L. DUNCAN BULKLEY, A.M., M.D.,
OF NEW YORK.

Very great activity has been manifested in the dermatological world since the last report on this subject was presented by your chairman, two or three years ago. There are now dermatological societies in very active operation in many cities of the world, and an International Dermatological Congress was held in Paris two years ago, and now a second is to be held in Vienna during the coming September; the New York Dermatological Society is now also in most active operation, holding its 215th meeting, and the American Dermatological Society its sixteenth annual meeting this summer. At all these societies there has been much exchange of thought and opinion, and very much valuable matter presented, and many new points brought up and developed.

The literature of dermatology has also increased very greatly during the last few years; not only have some new text books appeared, and several manuals, but the current periodicals have been filled with matter pertaining to this branch, and many new things have been brought forward from time to time.

There are now no less than seven journals, all of considerable size, devoted exclusively to the department of dermatology; of these, two are in German, two in French, two in English, and one in Italian; besides several other journals, which have their special department pertaining to this branch. The amount of literature in these and other journals is now so great, that it would be impossible for any one person to compass it, or indeed one would hardly be able to read what is printed in reference to dermatology during the year, even if the entire time was given up to this work.

It is therefore no easy task to cull from the large amount of material that has been presented, such matters as are worthy of presentation before you, and to write succinctly upon recent advances in the treatment of diseases of the skin and syphilis. It would take a long, long while, even briefly to mention the various matters which have hardly found other support than those of the originators of the idea. I will endeavor, however, to briefly present what I consider some of the most important features in this line during the past three years, and shall seek to make the subject matter as interesting and as profitable as possible.

In proportion as our intimate and minute knowledge of skin diseases increases, so will our ability to

treat the same tend also to increase, and the more clearly we differentiate between the various conditions found upon the skin, the more likely we will be to cure those cases that are presented to us. During the last few years, a considerable advance has been made in regard to the clearing up of the matter of that protean disease, eczema, which occupies such a large position in dermatology. We all know very well, that in time past, eczema has been to too great a degree a sort of a general carry-all, where are placed eruptions which could not be otherwise named with certainty; and a clinical description made up to embrace the features of all the cases which even rightly have been called eczema in time past would be very diffuse, and would cover a very large number of conditions. It has been the constant hope of dermatologists that the number of skin conditions which could be relegated to this name, would be diminished, and attempts in this direction have been made, more or less successfully from time to time; so that undoubtedly many of the cases which ten years ago would have been recorded as eczema, are now recognized as quite other affections.

As a striking illustration of this may be mentioned lichen planus, which is now so clearly differentiated, and successfully treated with remedies which are quite different from those employed in eczema.

During the last two or three years, we have learned practically to take out from eczema some other conditions which are almost equally as striking, and which a widening experience teaches us more and more to isolate from eczema as a disease proper. These are the cases which have been so admirably grouped together by Dr. Dühring under the name of "dermatitis herpetiformis," and those conditions which have of late years, under the guidance of Dr. Unna, of Hamburg, been grouped and recognized under the name of "eczema seborrhoicum."

I will not take up your time with entering at all into the matter of dermatitis herpetiformis, which Dr. Dühring has so fully and excellently elaborated, but will only mention that I am continually seeing cases which, in former times I would most assuredly have reckoned either as eczema, pemphigus, or a bullous urticaria, but which are different from these affections (although in some respects resembling one or the other), and which are now recognized and treated under the name mentioned.

Unfortunately our therapeutics of this disease, dermatitis herpetiformis have not progressed equally with our diagnostic recognition of it, and I do not know that I can rightly speak of any great advance in its therapeutics. I may say, however, that as far as personal experience goes in a very considerable number of cases, I do believe the disease to be curable in a large proportion of instances, if intelligently and carefully followed out for a sufficient length of time. I have a number of cases which remain entirely

free from the same and have done so for some months and years. Alkalies internally, alternating with large and oft repeated doses of arsenic, together with suitable external application will, in my judgment, control the disease.

Quite a different statement may however, be made with regard to the other disease mentioned, namely eczema seborrhoicum, of which you will hear more in the papers and discussion which will shortly follow. Dermatology certainly owes a very deep debt of gratitude to Dr. Unna for recognizing and isolating this condition of the skin; and, although some of his statements and theories in regard to its pathology, and some of his claims with regard to its therapeutics may not all have been confirmed by others, the fact stands out preëminently that we have learned very much with regard to the recognition and treatment of conditions which before were more or less rebellious, but which now when properly recognized and treated, yield very brilliant clinical results.

I consider the recognition and treatment of eczema seborrhoicum as one of the great advances in the line of therapeutics in dermatology during the last few years. I may only mention in this connection that its therapeutics largely consist in very mild parasitic measures, prominent among which stand resorcin and sulphur; when these are properly used in suitable cases, as described in current literature, the disease yields with amazing readiness. I may give the caution, however, that all skins will not bear resorcin, and that every now and then one will be found which will become quite acutely inflamed even under the mildest applications of the same.

In connection with the advances which have been made in respect to special diseases, mention should be made of lupus and tuberculosis of the skin, about which so much was written two or three years ago in connection with Dr. Koch's lymph or tuberculin. The remarkable statements in regard to its effects on lupus patches which were made on all sides, not long ago, which effects many of us saw ourselves, leaves no doubt that tuberculin exercises a powerful influence on tuberculous tissue in the skin; the abrupt cessation of its use is unfortunate, and it is hoped that further trials will be made, and that another year or so may furnish real advances in this direction. As far as I can learn, few if any cases of complete cure have been reported, but amelioration has frequently taken place; in so chronic a condition as lupus it might be expected that the remedy should be continued over a length of time, in order to obtain perfect results.

The main drift of advance in the treatment of diseases of the skin has been in the way of local treatment, and but little positive has been added of late to our knowledge in regard to the *internal therapeutics* of this class of diseases. Perhaps one of the most important points has been in regard to the internal use of ichthyol in controlling acne rosacea, and the diffused redness which is often so troublesome upon the nose. This was, I believe, first proposed by Unna,¹ and I myself have had very abundant opportunity to verify it. The remedy may be given either in drops, or made up into capsules or pills; the former, however, is, in my experience, much more effective. The remedy may be given in doses from three to five, or even up to ten drops

three times a day after meals. At first there is some repugnance to it, and to the taste which rises in the mouth afterwards, but this is shortly overcome, and patients who have experienced its beneficial effects, have repeatedly asked for the remedy again and again. It is uncertain as to how it acts, but probably in some manner upon the liver secretion, for in medium doses it very often proves a fairly effective laxative. In this connection may be mentioned also the benefit accruing from the same remedy in hemorrhoids, which was also first suggested to me personally by Unna, and which I have employed in very many cases with most satisfactory results. From the yielding of these two quite opposite conditions to this remedy, we may in a measure confirm the old statement of Plenck: "*nasus saepe rubet ex suppressis hemorrhoidibus.*"

Jamieson² reports the cure of lichen planus by means of tartrate of antimony, one-quarter of a grain every four hours for a week, and then three times daily. This is an old remedy which has repeatedly been brought forward in certain cases of obstinate eczema, and it would seem that there is some reason why it should be of value in this and other congestive diseases of the skin.

Barduzzi³ reports again favorably upon the effect of iodide of potassium in cases of psoriasis; in three diffused universal cases of a very inveterate character, which had been treated with transient success by all the usual remedies, he obtains results from iodide of potassium. In none of the cases was the amount of the drug larger than about one hundred grains daily. McCall Anderson of Glasgow, also reports favorably on the use of iodide of potassium in gradually increasing doses in this disease.

Mouty⁴ claims great success from the hypodermic injection of bichloride of mercury, in alopecia areata; the injections are made with a solution of 4 to 1000 in water of which five or six drops are injected around each patch. In this connection it may be well to recall earlier reports upon the injection of pilocarpin in this same disease, which I have myself seen of very great service.

Of the hypodermic treatment of syphilis we will speak later.

Mention must be made of the recent report of Blaschko⁵ in regard to the antipruritic effect of antipyrine, administered internally, which has also been confirmed by Dr. Goldenberg of New York. In lichen urticatus, and in urticaria of infants he found it not only checked the itching, but the eruption also ceased under its administration. In a case of pemphigus pruriginosus the itching ceased and the bullae also ceased to appear. As these affections are recognized to be neuroses, it is quite possible that in this remedy we have a means of their cure as well as relief, which is but another evidence of the marvelous control of this substance over nerve action.

In regard to the *local treatment* of skin affections, there have been very many features more or less new reported during the past few years, some of which have stood the test of time; many others have failed of corroboration.

Some time ago *lanolin* was highly vaunted as an excipient for local applications, and it was urged

² Jamieson, Brit. Jour. of Derm., Sept. 1891.

³ Barduzzi, Year Book of Treatment, Lea & Co., 1890, p. 258.

⁴ Mouty, Ann. derm. et de syph., 1891, No. 5.

¹ Unna Dermatological Studies, 2nd number 1886 (Supplement to Monatsch. f. Prakt. Derm., 1886).

⁵ Blaschko, Berliner Derm. Verein, July 2, 1890 (Archiv für Derm. und Syphilis, Vol. 23, p. 995.)

that being an animal fatty matter, absorption through the skin was attained by means of it much more freely than by any other substance. It is a little interesting to note that this has been quite refuted by recent experiments of Luff⁶ and others, who have shown pretty conclusively that of many fatty substances employed, this afforded the least results in this direction; and further, that, contrary to all expectation, vaseline was the basis from which remedies were taken up most readily into the system; so that I think I may safely say that to-day relatively little lanolin is used by those actively engaged in the practice of dermatology.

During late years considerable attention has been paid to the securing of substances which shall make firm coatings upon the skin, either for protective purposes or to obtain the close contact of remedies to the integument. It would occupy too much time to give even the formulæ which have been brought forward at one time or another, in the way of pastes, varnishes, etc., some of which, however, are of very considerable value. Much credit is due Dr. Pick of Prague, for investigations in this direction. In certain cases, what is known abroad as the zinc-leim is often of very great value; about the best combination for this which I know is the following, which has long been in use in the Skin and Cancer Hospital in New York. The formula is as follows:

R. White gelatine, 6 dr.
Glycerine, 9 dr.
Dextrine, 1 dr.
Oxide of zinc, 6 dr.
Water, 2 oz. M.

Dissolve the gelatine in water, applying heat; rub up the dextrine in the glycerine, and add to the gelatine when dissolved. When all is liquid, add the oxide of zinc, thoroughly powdered.

This is sometimes very much improved by the addition of a small quantity of ichthyol, say one drachm or more in the above formula. When cold, this forms a rather solid, elastic mass; it is applied by heating it gently in a water bath so as not to burn the ingredients, and then painting it over the surface with a brush. This dries firmly upon the skin and forms a coating of any desired thickness, which adheres quite firmly and, if protected by a bandage, and in places where there is not so much movement, it may remain attached for some days. In making the application it is well to lightly brush the surface with absorbent cotton soon after it is painted on the skin, the fibers of which adhere to it and assist in drying the covering, and together with it make a firm and elastic coating. The indications for such an application are very varied, and it will often be found to serve a most important part in dermal therapeutics. In many cases of obstinate eczema about the legs, it forms the best possible coating, and under its use the infiltration will sometimes disappear very satisfactorily, and there is seldom if ever any itching after it is well applied. It is also a most satisfactory application in many cases of herpes zoster, forming a protective covering unequalled by any other. In old ulcers on the leg or about the feet, very good results are often obtained by coating them and the adjoining parts with this preparation, after a suitable application has been made to the sore itself.

Various modifications of this idea have been presented at different times, one of the most recent and valuable of which is what is known as bassorin paste,

presented by Dr. Elliot,⁷ of New York, as a base for dermatological preparations. Bassorin is a species of gum, derived from the tragacanth, which is mingled with water, glycerine and dextrine in proportions proper to give rather a firm, elastic mass. It is applied without heating or with very slight warming, being made of the proper consistency to paste over the surface with the addition of warm water; it makes a thin coating over the skin, which dries and adheres firmly, and will often remain on some days; it may then be easily removed with water when desired. This may be combined with a large number of medicaments, such as boric acid, aristol, chloral, camphor, salicylic and pyrogallic acids, resorcin and even tar. Its use is principally in eczema and psoriasis, but may be applied to other conditions when it is desired to keep an application in close contact with the surface.

Dr. Pick of Prague, has recently put forward what he calls *linamentum exsicicans*, as an occlusive and protective remedy, similar to the bassorin paste of Elliot. The formula is gum tragacanth 5 parts, glycerine 2 parts, water 100 parts.

In the same line of therapeutics come even more superficial applications, to which the name of varnishes has been applied, principally those combined with ichthyol. It is often desirable to apply this substance in some strength to the skin, but when used alone it does not dry, and forms a very unpleasant application. In order to overcome this difficulty and to produce an impermeable layer of ichthyol it is incorporated with other substances, making a varnish which can be easily and quickly removed without irritating the skin.

Unna⁸ has presented some formulæ which are of value. One of them is as follows:

Ichthyol, 40 parts by weight.
Starch, 40 parts.
Concentrated albumen solution, 1 to 1½ part.
Water, about 20 parts.

The starch is moistened with the water, the ichthyol well rubbed in, and finally the albumen added. He states that this may be combined with chrysarobin, 2 to 5 per cent., pyrogallol, resorcin and sulphur. He recommends the application in certain forms of eczema and psoriasis, and the plain ichthyol varnish in rosacea, seborrhoeic eczema and some other conditions. There is certainly yet a considerable field for the study and development of this class of applications, in order to make the treatment of certain diseases more pleasant and satisfactory.

In regard to some of the newer substances which have been lately introduced into dermatology a few words may be added with advantage. In a former report two or three years ago, I spoke of resorcin and ichthyol, which were then comparatively new remedies, and I was not able at that time to endorse them as heartily as I am on the present occasion. When used properly, they are most certainly of very great service in the treatment of many cutaneous diseases. If *resorcin* were never of value except in seborrhoeic eczema, its almost perfect control over most cases of this eruption would alone give it a high place in dermatology. In a watery solution of 4 to 6 per cent. with a little alcohol and glycerine, it will commonly control the disease, especially upon the scalp, often in a surprising manner; it should be

⁶ Luff, British Journal of Dermatology, Vol. 2, 1890, p. 167.

⁷ Elliot, Journal of Cutaneous and Gen.-Ur. Dis., February, 1891.
⁸ Monatsch. f. Prakt. Derm., Vol. xii, p. 49.

thoroughly applied at least once daily, and rubbed well into the affected surface. In obstinate acne it is often also of very great service, used very much stronger—even up to 10, 20 and 30 per cent. or more, generally in combination with zinc ointment. This is well rubbed over the affected area and left on the skin over night: it produces a certain amount of drying and desquamation of the surface, which after a few days is allowed to peel off, and a new application is made. The process is a little severe, but very rapid results can be obtained by this measure. As a mild parasiticide resorcin is often very valuable in erythrasma, eczema marginatum and other affections.

Ichthyol certainly possesses very decided anti-pruritic powers, and used in a watery or oily solution from 3 to 10 per cent. will be of the greatest service in certain forms of pruritus, eczema, urticaria, and in dermatitis herpetiformis. In the intertrigo of children a very weak watery solution, 2 to 5 per cent., bathed over the surface and followed by a good dusting powder, will be often all that is required. *Ichthyol* also possesses very marked healing properties in certain forms of ulceration; after burns it serves to promote epidermic growth, and as an addition to ointments will often aid greatly in the healing of ulcers. Incidentally it may be mentioned that *ichthyol* is often of very great service internally in chronic rheumatism, and when applied pure to the skin and covered with a woolen bandage, it will often act most gratefully in relieving pain and reducing rheumatic thickenings.

Aristol is another remedy which has found a definite and fixed place in dermatological therapeutics. When dusted over sores, even the primary lesions of syphilis and chancroids, it will often serve to heal them more rapidly than any other application: commonly it will relieve the pain of ulceration, and may be safely dusted on the surface, which is then covered with some mild ointment. *Aristol* is also of unquestionable value in the treatment of psoriasis, and when thoroughly applied will often cause lesions to disappear quite rapidly. It may be used in any base, but I have more commonly employed it in connection with bismuth and the white precipitate ointment, diluted three times. In order to test the efficacy of *aristol* I have repeatedly applied the same ointment upon one side of the body with the addition of *aristol*, twenty or thirty grains or more to the ounce, and on the other the same ointment without such an addition, and patients have repeatedly remarked the much greater improvement upon the side to which the *aristol* had been applied.

In this connection may be mentioned also the still newer application which is of value in psoriasis, namely, *gallacetophenone*; this is employed in ointments in the strength of 5 or 10 per cent.; the latter being that which I have commonly used. Dr. Goldenberg, who has been my assistant at the New York Hospital for some years, has made very extensive trials of this remedy, and reports upon it most favorably; and for the last few months I have had a very considerable number of patients under its use. I have always employed it alone, either in vaseline or rose ointment: it is to be well rubbed into the patches and left upon them as much as possible; it is non-irritating as a rule, and serves to remove the scales and diminish rapidly the redness of the patches, and after a few weeks' treatment the lesions vanish completely. Dr. Goldenberg reports it to be

also of value in eczema seborrhoicum, but of this I have had no experience.

Dermatol is another new remedy of very recent introduction. It is, I believe, a sub-gallate of bismuth, which has been recently advocated very warmly by Dr. Bluhm,⁹ principally in ulcers of the leg; it is thickly applied to the ulcer, which is then covered with absorbent cotton and bandaged firmly; the bandage may be left on at first for three days, afterwards changed less seldom. I have used this in a few cases, and the result has seemed to be very satisfactory.

Europhen is a new preparation of similar composition to *aristol*: its physiological effect is quite like to that of iodoform; it is a yellowish powder with very little odor, containing 28 per cent. of iodine. It is not soluble in water or glycerine, but easily soluble in alcohol, ether, traumaticin, collodion, and oil. *Europhen* has been successfully employed by Eichhoff¹⁰ in simple ulcers, and those of primary and tertiary syphilis, etc. It is used as a dusting powder freely upon the surface, which is then covered with an indifferent ointment, or it may be made into ointment of 5 or 10 per cent. It is expected that it will become serviceable as an internal remedy in syphilis, on account of the amount of iodine it contains in a tolerably free state.

During the past few years considerable attention has been drawn to the value of certain preparations of coal tar, *fuchsine*, *pyoktannin*, etc. These have been principally brought forward as remedies in cancer and malignant growths, they being supposed to have definite action in altering cell life. While their real importance has been considerably over-estimated at times, they certainly are of value to a limited degree in the conditions mentioned, and also in other states. In a solution of three to ten grains of *fuchsine* and four ounces of alcohol, or with less alcohol and mainly water, it relieves largely the pain in cancer, and produces a much more healthy surface, as has been repeatedly shown in the wards of the New York Skin and Cancer Hospital. *Pyoktannin*, in one-fourth to one-half per cent. solution, injected into malignant tumors, has seemed at times to check their growth and relieve the pain; applied externally in about the same strength, it has been of marked advantage in producing the healing of certain ulcers, especially on the leg.

Menthol has steadily come to the front of late years as an anti-pruritic remedy; applied either in the form of an ointment with vaseline as a base, or in oil or liquid albolene, in the strength of 3 to 5 per cent., it will sometimes give the very greatest relief in pruritus senilis: in urticaria, and also in the general itching which will often accompany certain cases of eczema, it may also be well employed in about the same or a little greater strength; oftentimes it will seem to produce too great a chilling effect upon the surface, which may be in a measure counteracted by the addition of carbolic acid to the extent of one or two per cent.

A somewhat new form of application to the skin has recently been brought forward by one of the manufacturing chemists under the title of *stearates*. We are all familiar with the various preparations of *oleates*, which have been before the profession for some time, and a few of which have proved to be val-

⁹ Bluhm; *Therap. monats. hefte.*, 1891, p. 616.

¹⁰ Eichhoff; *Therap. monats.*, 1891, p. 379.

uable additions to our pharmacopœia. These latter are, as is known, in the form of oily or greasy preparations, they being made with the rather liquid constituent of fat, oleic acid. The preparations now referred to are compounded of one of the solid constituents of fat, stearic acid, and have a very different form and appearance from the oleates, and as far as I have been able to learn from some months' trial of some of them, they are destined to fill a valuable place in dermatology.

The stearates which I have seen have all been in the form of very fine, impalpable dusting powders, and present a delightful application to the skin. Being of a fatty nature they form a very pleasant, slightly unctuous covering when dusted on the skin, and answer an admirable purpose in certain cases. All know the difficulty of securing a dusting powder, especially for the region of the scrotum and thighs, where those with starchy ingredients tend to become converted into a pasty mass. The stearates which I have mainly used are those of zinc, compounded, the one with forty per cent. of salol, and the other with ten per cent. of salicylic acid; there is also one with three per cent. of resorcin, which has also been of service.

Allow me here to present what I consider a decided advance in local therapeutics in connection with the treatment of *alopecia areata*, which I had the honor to report upon at the last meeting of the American Dermatological Association.¹¹ Although I cannot at the moment refer to corroborative accounts of this which have been mentioned in print, I may say that the method has been favorably reported upon, and a very considerable number of my friends have from time to time spoken of its use, as I have suggested it to them during many years past, and I have employed it myself with satisfaction, certainly for over five years.

The application referred to, consists in rubbing the patches of *alopecia areata* with a pledget of cotton, twisted upon a wooden toothpick, dipped in a 95 per cent. solution of carbolic acid. This is freely rubbed into each patch and slowly into the tissue around, never however exceeding the extent of two square inches of surface at once. While, as we know, carbolic acid may produce a considerable amount of eschar when applied to other portions of the body, it is remarkable that when the same is made to patches of *alopecia areata* upon the scalp, there is really very little reactive effect; among hundreds of applications which I have made, I have never yet had a disagreeable result, never more than a slight formation of a very superficial crusting, which disappeared without leaving any scar or doing any damage to the texture of the skin. In most instances, however, there is nothing more than a superficial scaling produced, which passes off, leaving the surface reddened, at the end of a week. In some cases in which I made special experiments with this remedy alone, portions of the scalp were painted in the shape of rectangular figures, and upon them the hair grew most luxuriantly in striking contrast to the surrounding bare parts. I do not put forward this remedy as the only one to use in this disease, for I am not only an unbeliever in its parasitic origin, but also a firm believer in its nervous origin; in conjunction with the local treatment referred to I

would most earnestly recommend the internal administration of strychnia and phosphoric acid in full doses, and the use of all dietary measures which may both improve the general health, and nourish the nervous system, such as fats, phosphorus, etc.

In regard to the treatment of *syphilis*, there have been considerable advances made in the line of establishing the curability of the disease, and determining more or less accurately the time of beginning and duration of treatment, and in regard to certain methods of administering mercury, notably by hypodermic injection.

The opinion is gaining ground slowly that it is better as a rule to defer active mercurial treatment until after the appearance of some other symptom of syphilis than the primary sore; the reasons are, both in order to be as absolutely positive as possible in regard to diagnosis, and also because it is believed by some that the later manifestations of the disease are more severe and obstinate if it is checked early in its course, before the roseola appears.

Most recent systematic writers now agree that with a sufficiently careful and prolonged treatment syphilis is curable, both in so far as propagating itself further by contagion and heredity, and also so far as relates to future serious results to the patient; but on the other hand, most writers also agree that in a certain small percentage of cases sequelæ may occur even after the most enlightened and sufficient course of treatment. Two years is the lowest limit assigned for the continuous supervision and treatment by the physician, while some extend it to three or four years.

But, on the other hand, some recent observers are again urging short periods of very active treatment, of a few weeks or months, and speak of the cure of the disease; it is presumed, however, although seldom stated, that reference is made to the complete disappearance of present symptoms, for no one who has had much experience with syphilis will believe that the disease can be permanently cured in any proportion of cases by any such brief measures.

The claims for such satisfactory results are mainly made by those who have advocated the hypodermic method of treatment, and this, therefore, should receive our serious attention. Szadek¹² has made a careful study of the subject, and his masterly paper is well worthy of our attention; I will briefly mention some of the data which he has collected.

Commonly the hypodermic injections of mercury are made deeply into the muscular tissue, principally into the gluteal region, and at intervals varying from every day to even one week apart, the interval depending upon the severity of the case, the effect of the remedy, and the strength of the injection. To read the accounts given in abstract, one would believe that nothing more could be desired in the treatment of this disease. When proper care is exercised in the determination of the dose and interval of administration, and when due skill is exercised in giving the hypodermic injection, the majority of writers believe that neither salivation need occur, nor need there be any abscesses at the point of injection.

The preparations of mercury and forms of administration have varied greatly with different observers, and it would tax your patience too greatly to attempt to give even an abstract of the many different

¹¹ Bulkley; Journal of Cutaneous and Genito-Urinary Diseases, March, 1892.

¹² Szadek, The Medical News, Aug. 15, 1891.

points which have been presented. They may, however, be grouped under two main classes; first the *soluble* mercurial salts, and, second, those which are *insoluble*.

As is well known, Lewin¹³ of Berlin, over twenty years ago introduced on a very extensive scale the hypodermic injection of solutions of the bichloride of mercury, and reported favorably in a large number of cases. Since that time reports have been given in regard to a number of other soluble preparations of mercury: the benzoate, succinide, oxycyanide, and hydrochloric gluten-peptone sublimate, with which latter preparation Hufiler of Erlangen, gave upwards of 1,300 injections to seventy patients, with only good results. The solution was so graduated that each syringeful contained two-thirds grain of the salt, representing one-sixth grain of bichloride.

Of the insoluble salts and preparations of mercury a large number have been experimented with, and in most instances favorable results are reported: of these may be mentioned calomel, the yellow oxide, the black oxide, the salicylate, the thymolate, and a gray oil introduced by Lewy of Vienna, consisting of metallic mercury rubbed up with various oily substances. This latter seems to have been the least favorably reported upon, and accidents have occurred in its use, which would seem to render it an undesirable preparation.

The most valuable of these insoluble preparations for hypodermic injection appears to be the salicylate and thymolate of mercury; these have been used in liquid paraffin, or liquid vaseline 1:10, but Szadek advises the former in suspension, in the following formula: R. Hydrag. salicyl, gr. xvi-xxiv, mucill. gum. acac, gr. viii, aquæ destillat, 3vj.; of this, fifteen minims was injected every three days. A number of observers have reported very favorably of the salicylate of mercury, there being no abscesses, and no unfavorable results.

The thymolate of mercury has also been successfully employed by a number of observers, a 5 or 10 per cent. emulsion in liquid paraffin being used; or as Szadek again recommends, in emulsion with gum arabic as follows: hydrag. thymoloacet 1.5 parts; mucill. gum. acac, 0.5 parts; aqua destillat, 20 parts. Using this in injection every three or four days he claims that from six to ten injections suffice in most cases of recent and non-inveterate syphilis; abscesses do not occur.

Time does not permit an extended consideration of this subject, but this much is given to call attention to what is regarded abroad, and by many in this country as a most valuable means of combating syphilis.

Such in brief are some of the advances in the treatment of diseases of the skin and syphilis which have been made during the past few years; there is need for yet more earnest work in this department of medicine, for there are yet many more advances to be made, and it is earnestly hoped that the members of this Section of the American Medical Association may do their full share in forwarding the work. Dermatology is a most fascinating study, and one which amply repays all work put into it. Too long has it been the opprobrium of the profession; far too little attention has been paid to this branch of medicine by the profession at large.

If I understand the purpose of this Section it is that the general practitioner may come here and hope to find something which may be of interest and profit, while here he has also a place where he may discuss in a practical way the difficulties which he has met with in his practice, in connection with the diseases which belong to this Section. These Sections of the American Medical Association are not for specialists, where they may discuss abstruse questions or report rare cases; such opportunities are afforded by the special Associations, which meet each year, and in which much good work is done. The Sectional work is, or should be, the main work of this Association, and in proportion as the mass of physicians who compose these grand gatherings of the medical profession shall come in and take active part in the work of the Sections, by so much shall our Association, which we all love, be raised and honored.

In order that our matters may take a practical turn I have, as far as possible, sought to procure practical papers upon more or less common subjects of interest to all, and it is hoped that free and full discussion may follow their reading.

For several years we have also had a Question Box, which stands here on the table, into which it is earnestly hoped that the members will drop questions relating to any topic belonging to the Section work, either those on the program or relating to any subject in dermatology or syphilology which they would like answered. An hour has been set apart on the program for Wednesday afternoon when these will be considered by those to whom the chairman shall assign them. It is also suggested that if there are any topics which any of the members would like fully considered at the session next year, these could also be dropped in the box, and the executive committee to be appointed by the Section will take charge of the same and see to their being properly presented at next year's meeting.

This leads me to speak of the proposed Executive Committee, which it is hoped may be the means of greatly advancing the work of this Section, as said committees have already done in other Sections. Three members of the Section are to be elected to serve on this committee, one of whom is to retire yearly, the place each year to be filled by the retiring chairman of the Section. It is hoped that, by means of these combined executive committees in future the work of the Sections will be so unified that all proper work belonging to each will be referred to the appropriate Section. Thus, on the general program this year, I find no less than five papers to be read elsewhere which fully belong to our Section. If there is anything in Section work all must agree that the highest gain will be reached by including all papers in each program representing the branch to which they belong. Let us hope that in future under the new plan of work there will be much more symmetry of action.

One more point in regard to the forwarding of the work of this Section and I will close. Several of the other Sections have found it very agreeable and profitable to have a dinner to which those interested in each branch represented may come. It would indeed greatly promote our interest in this Section to spend an evening thus socially together, and it is earnestly hoped that this Section may take action similar to that taken by some others. Tuesday even-

¹³ Lewin, On Syphilis and its Treatment, Amer. edit., Phil., 1882, p. 17.

ing is that which has been commonly chosen, as it is generally free from other engagements. The dinner need not be an elaborate or expensive one; the others referred to are furnished at two dollars for each one joining in the same. It is earnestly hoped that the Section may take such action during this session as shall lead the officers and executive committee to arrange for such a dinner the coming year.

Thanking the Section for the honor conferred on me in calling me for the fifth time to preside over its deliberations, and for your kind attention at the present time, and hoping that there may be full and free discussion of the subjects presented on the interesting program, which I take pleasure in setting before you, I declare the session of the Section opened for the business on hand.

SOME SUCCESSFUL METHODS OF TREATING ALOPECIA AND ALOPECIA AREATA.

Read in the Section of Dermatology and Syphilology at the Forty-third annual meeting of the American Medical Association, held at Detroit, Mich., June 7, 1892.

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Alopecia and alopecia areata are diseases of the scalp which have always interested dermatologists, and the problems connected with these conditions have acquired a new impetus of late years, by reason of the extensive studies which have been directed towards them. The questions which have been considered mostly are those regarding the etiology and the treatment of these conditions. These questions are inter-dependent to a great degree and for that reason it may not be regarded as inopportune to devote a few words to the consideration of the etiology of these diseases before devoting the major portion of this paper to the subject matter pure. As the etiology and consideration of the causes leading to the diseases of whose successful treatment I purpose speaking, have a considerable influence upon the adoption of successful therapeutic measures, I will offer no further apology for a brief résumé of these questions, more especially as they have been the topics of many long and unsatisfactory discussions and we still regard them as being, in a great measure, *sub judice*.

In regard to the etiology there exists quite some difference of opinion and the advocates of the different theories advanced may be roughly divided into three groups, viz.: Those contending that all cases of these diseases are of parasitic origin; those who contend that the origin of these troubles is of a neurotic character, and those who are inclined to favor the one or the other according to the particular indications presented in each individual case. The upholders of the parasitic theory have made a strong case apparently, but their arguments possess certain inherent defects which are of such a nature as to considerably invalidate their claims. The evidence is far from convincing in a large number of instances, and we have added to this the suppression of the negative cases or of such experiments as do not tend to support the view which is advanced. The fact that strong antiseptics, locally applied, will tend to promote a growth of hair is no proof that the result is due to the destruction of parasites or of microorganisms of a pathogenic character. The further fact that these applications must be of con-

siderable strength serves to invalidate the position still more. For it can be justly argued that the growth is due, not to the parasiticidal properties of the remedy, but rather to its stimulating qualities. Again, we have exhibited to us cultivations of organisms obtained from such cases. Unfortunately for the cause advocated these cultivations have but too often proved to consist simply of saprophytes and the same could be obtained from organisms found in perfectly healthy scalps. Such evidence falls very short of proof and this is the result found in a large number of the cases which present themselves for treatment and who are affected with the troubles under consideration. I do not intend to deal exhaustively with these defects in the matter of proving the opinion advanced, but merely desire to point out some possible sources of error to which investigators have become blinded by their enthusiasm.

Those who contend that alopecia and alopecia areata have a constant neurotic basis, have a certain amount of objections to contend with which they have not yet successfully overcome. They have very plainly demonstrated that parasites are not the cause in a certain number of instances. They have also proven experimentally that lesions to certain nerves were followed by alopecia. But, in some cases, all the neurotic phenomena discoverable and undiscoverable have been treated with no beneficial results, even when aided by external stimulating measures. No results could be obtained until strong parasiticides were employed; and, while claiming merely stimulating properties for these agents, the obvious conclusion could not but force itself upon an impartial observer that the disease was, in fact, of parasitic origin. I do not desire to dilate further on this point but will pass on to that class of observers whose conclusions appear to me to be not only more rational, but correct and in consonance with clinical and pathological observation, besides being confirmed by the therapeutic results obtained.

I refer to those whose contention it is that alopecia and alopecia areata may be due to either parasitic or to nervous trouble, or to both combined. The negative results obtained by the rigid adherents to either of the first two theories have found that in cases of failure a resort to the other method or the adoption of both has resulted in success. Those who persisted in one plan have been mortified by observing nothing but failure follow their best efforts. Some clinical considerations are not dealt with in a manner which the importance of the subject demands. For there are certain objective symptoms which can be observed in some cases which will serve to distinguish between an alopecia of neurotic and one of parasitic origin. Of course, when I refer to alopecia in this paper I do not desire to include the senile form nor that in which the follicles of the hair have been destroyed, atrophied, or lost beyond redemption, but rather to presenile alopecia, *defluvium capillare*, and alopecia areata. In the last affection, we find the neurotic and parasitic types rather plainly differentiated by their respective histories and objective characteristics.

In the parasitic form a history of infection may or may not be made out. The disease may be traced to the barber's brush, to infection from caps, hats, etc., worn by other individuals suffering from the same trouble; or nothing definite may be learned in this respect. Itching, of a more or less marked

character, will be found present. The history of the attack will show that the falling out of the hair was gradual and peripheral. On inspection the involved area does not present a smooth surface. It is roughened to a certain degree, and the hairs at its border are lacking in lustre as well as easily broken upon attempting extraction. Those portions of the scalp most often scratched are involved, and include the temporal and occipital portions of the scalp, with occasionally the vertex. Auto inoculation can be very clearly made out in many cases, and the entire evolution of the trouble traced upon the scalp of an individual. Scrapings from an affected area, if carefully rubbed into the skin of a dog, will produce an analogous condition, thus verifying in a satisfactory manner the parasitic character of the cause of the alopecia. It must always be remembered, however, that these conditions only apply to cases which have not been tampered with.

In the neurotic variety of alopecia areata, which in my experience occurs more frequently than the parasitic, we may or may not have a history of neuralgia, traumatism, or nervous or mental shock. The subjective sensations, if any exist, are not sufficiently well marked to attract much attention. The history of the onset is generally that it has been sudden, one or several areas becoming suddenly denuded of hair. These may be roundish or ovalish, or of irregular contour. The sizes of these areas also vary considerably, and while progressive to a certain extent, we have a stationary period establishing itself and an effort at spontaneous recovery. Objectively the denuded spots have a white, almost glistening appearance, the comparison to ivory being a very apt one. A peculiarity which is present in this disease is that it is not limited to the scalp alone, but may attack, as it often does, the eyebrows, axillæ, breast and pudenda. The few symptoms enumerated are sufficiently well marked to distinguish the condition from one of parasitic origin. But we are sometimes called upon to treat cases of alopecia areata in which both a parasitic and neurotic cause is at work. In these the mixed effects due to the different causes may frequently be observed quite readily; whereas in others the problem presents such complications as to require fine discriminative powers as well as close observation and examination.

It is hardly necessary to allude to any considerable degree to the other forms of alopecia which I have mentioned. The same general conditions and appearances will hold as in alopecia areata *mutatis mutandis*. Concomitant phenomena are always found in connection with each individual case, of such a nature as to lead to tolerably accurate conclusions in regard to its etiology. This being done, the rational method to pursue readily suggests itself, and the success of the therapeutic measures employed will wholly depend upon a proper selection of remedies and the method of their application.

Having made these few preliminary remarks I now desire to speak of some of the successful methods which I have employed in the treatment of some cases of alopecia and alopecia areata. I have alluded briefly to the etiology of these affections in order to avoid useless repetition later on, and will premise by saying that I desire to speak of methods without entering into a detailed recital of cases, as those of the same type would be merely repetitions of each other, and on that account pos-

sibly wearisome to the reader. I will further state that I only purpose speaking of alopecia areata and of presenile alopecia, these being by far the greatest number of cases of falling out of the hair which I have had occasion to treat, and for that reason, the successful treatment of such possesses more value than it would in cases less frequently observed and subjected to therapeutic measures.

The cases of presenile alopecia which I have had occasion to treat (exclusive of such as are of syphilitic origin), occurred in males, and the majority of these were light blondes. In all cases the hair was fine and silky and the scalp rather pale. In some seborrhœa existed, and the amount of secretion varied from a very small amount to quite a considerable quantity. In all there was a history of more or less itching and of a gradual loss of hair, chiefly at the angles of the forehead and at the vertex. Combing the hair showed that this loss was considerable, although a certain proportion consisted of bed-hairs, so that the actual loss was by no means equal to the apparent. All were individuals who were otherwise in apparent health and whose functions in general seemed to be in perfect condition, with the exception of one, possibly. The nervous system lacked that stability and repose which should exist in the normal individual and which is so essential to proper assimilation. While this condition was not so apparent in all, those who did not exhibit the grosser phenomena of nervous disturbance exhibited psychical phenomena which plainly pointed to this state of affairs. Irritability upon slight provocation, anxiety concerning trivial affairs, depression of spirits out of proportion to the exciting cause, and similar perturbations showed themselves as evidences of the neurotic condition present in the individual. A prominent feature was the hopelessness of the patient so far as regarded any ultimate result in the treatment of his case. It will be readily seen that such cases are not very promising, yet a little moral suasion has quite an effect in improving such a condition, and success is not the impossibility which it might appear at first blush. The general treatment I have adopted has been various in different cases, but has been directed to the amelioration of the nervous system. In some cases I have ordered the following pill thrice daily:

R. Strychnia sulphat. gr. 1-60.
Ferri redacti, gr. j.
Quiniæ bisulphat. gr. j
℞. Ft. caps. No. 1.

Or, if starvation of the nerves seemed to be present, the compound syrup of hypophosphites (Fellows) was ordered taken in drachm doses four times daily with a milligram ($\frac{1}{60}$ grain) of strychnia sulphate with each dose. In some cases I have found it advantageous to supplement this treatment with muriate of pilocarpine taken at bedtime, a powder containing $\frac{1}{2}$ to $\frac{1}{6}$ of a grain of the remedy being taken in water. The effects of this internal medication was not a matter of coincidence, for, by its alternate withdrawal and resumption, most notable differences could be observed. These differences were so marked as to attract the attention of the patients and lead them to the conclusion that the internal medication was of a most beneficial character in the improvement of the local condition. Such results occurred not only in one case but in several, and, although failure might follow the same course in some future

cases, the success which has been accomplished is sufficiently encouraging to justify a continuance of the method until a better one can be suggested that will stand as rigid a test.

Alopecia areata presents difficulties, occasionally, of such a character as to almost make us despair of any successful issue. I have been extremely fortunate in securing good results and can only attribute them to the energetic means which have been used. Before entering into the consideration of the treatment I desire to premise that I have always been careful to distinguish between the parasitic and the neurotic varieties of the affection. Having done this the treatment was adapted to the condition present, and, whilst one method might fail, the general principle was always kept in mind in the application of therapeutic measures.

In the parasitic form of alopecia areata I have used two parasitocidal mixtures. One, the weaker, for the purpose of applying to the entire scalp and thus preventing new infection and a further spread of the trouble; the other, the stronger, to apply directly to the implicated areas for the purpose of destroying the parasite and thus producing an end to the disease. Both preparations were ordered applied twice daily; and as all the cases I observed occurred in males I had the hair clipped close to the scalp, thus facilitating a thorough application of the remedy. For the weaker application I first used a $\frac{1}{50}$ bichloride of mercury solution, afterwards using instead a 3 per cent. creolin solution. Both acted well and the only advantage in the latter is the smaller danger of toxic infection from its use. This wash is to be applied to the entire hairy scalp, the affected areas being attended to after the first operation has been gone through with. For the affected areas I ordered the application of *sapo virides* and this to remain about five minutes. Then a mild scrubbing with warm water and, after thoroughly drying, the following to be rubbed in in small quantity:

R. Hydrag. bichloride, gr. j.
Lanolin, ʒi.
℞. Terebene.
Sig. Apply twice daily.

In a comparatively short time a strong healthy growth of hair could be observed.

I desire to state that it is not always necessary to apply this last daily. It will be easily determined by the observer whether this is necessary or not. Not infrequently one application a day or every other day will, in a short time, be all that is necessary. I have had no occasion to change the composition of this application, as in the few cases in which I employed it, it proved satisfactory.

In alopecia areata of neurotic origin which, in my experience occurs much more frequently, I have given internal treatment in some instances and not at all in others. After trying various internal remedies with more or less success I have finally adopted the same preparations as those I have spoken of in the treatment of presenile alopecia. They have seemed to serve the best purpose and gave the best final results. I have also observed that this internal treatment is of positive and undoubted benefit. Discontinuing the remedy is followed by inferior results and the effects of the resumption of the treatment became very quickly apparent. In some cases, however, general treatment appears to be entirely unnecessary, but I have found them to be very few in num-

ber. It would appear that they are such in which a sudden shock was experienced from a traumatism, and the nerve equilibrium was regained in a comparatively short period of time. Even in these, however, if no form of treatment has been essayed for some considerable period of time after the injury internal treatment is found of benefit. Yet cases of the last class must of a necessity be very infrequent. In those experimental cases in which nerves have been excised and the operation was followed by alopecia areata, the regeneration of the hair occurred spontaneously, and local as well as general treatment appeared unnecessary; but they are certainly not cases which could be given as a criterion by which to judge.

To come to the local treatment of alopecia areata: The methods which I have found successful are essentially of the same character, although they differ materially in application. I do not claim any originality for either, as one is rather old and the other was suggested some little time since. They are essentially irritant in nature, but efficient in effect so far as my experience enables me to judge. The first one which I employed is the suggestion of a French author, and consists in applying cantharidal collodion to the affected area. After vesication has been established a dressing of some bland ointment is used. As is well known, cantharidal collodion varies much in its composition. We find that in some instances it acts very promptly, whereas in others its action is quite slow. Again, its effects in the same individual may be comparatively superficial or quite deep, depending upon the degree of the cantharides present or the activity of the fly used in its composition. These circumstances necessarily acted as factors in controlling the frequency of application of the remedy. In some cases I applied the cantharidal preparation twice a week, and in others it could be used but once in the same length of time. The reaction was more or less prompt and, in some cases, I have had the unfortunate experience of seeing no effect of a distinct character beyond some superficial irritation of a rather mild character. However, by obtaining a good article I have been enabled to obtain excellent results in a comparatively short time. While the effects produced were of the best, the various inconveniences attending its use made the method anything but a pleasant one to the patient. The collodion is not a very easy method to manage. It mats the hair, does not look well, is very difficult to remove and is inconvenient to handle. Added to this, the disagreeable necessity of continuously applying an ointment further increased the aversion of patients to the entire curative procedure of a local character. I often experienced much difficulty in persuading patients to continue the treatment, and it was only the good results obtained which led them to submit to it in the hopes of a speedy recovery and a proportionately short submission to the entire process. This difficulty was particularly marked in females, and it was with much trouble that many could be persuaded to continue a routine which was so distasteful in many respects.

When a new method was announced which obviated many of these inconvenient accompaniments, and which was claimed to be much superior in its results, I immediately adopted it, and desire to express here my complete satisfaction with the results attained through its use. I also desire to express

my gratitude, in a personal point of view, to its originator; and I have no doubt every dermatologist who has given the method a fair trial will join me in this expression of thanks. I allude to the applications of pure carbolic acid as advocated by L. Duncan Bulkley. His technique is about as follows: He advises the application of pure carbolic acid once every two weeks to the affected areas. The amount of surface to be thus treated must not exceed two square inches. He furthermore states that two, or at the most three applications will suffice to effect a complete return of the hair. It may be Bulkley's experience to have had tractable cases; or I may have been unfortunate enough to have only stubborn ones. This much, however, is certain: As soon as the method was announced it struck me as a particularly good one to use. I had a patient to whom it was applied as directed, but I had no success. This led me to modify the treatment, which I did as follows: Instead of making an application once every fortnight I made it twice a week; and instead of limiting it to two square inches I applied it to the entire surface which was involved, this amounting to about ten square inches. Moreover, I was not at all satisfied with the ordinary 95 per cent. carbolic acid which I could obtain. It did not seem to be sufficiently strong. I obtained some pure English carbolic acid, and by its means obtained more rapid and marked effects. With this product it is unnecessary to rub forcibly into the skin, and the result obtained appears to me to be much more satisfactory. It is true that my experience thus far has been limited to but a few cases, but they have proven so satisfactory that I will continue until something better is offered. The method of applying the agent consists in freely swabbing the affected area with it, no matter how much of the scalp is involved. Those portions which are affected by the acid turn milky white in a few moments, and if any are not thus affected they are touched again. This is all that is necessary. If the parts which turn white show that inflammatory reaction has been very marked, they are passed over at the next sitting. Generally, however, there is at most but a slight amount of desquamation.

Such a treatment, while rather painful, is efficacious. I have been in the habit of also employing it in presenile alopecia, in a modified manner. Instead of applying the carbolic acid liberally I have done so sparingly, and at intervals of one or two weeks. The impulse this procedure gave to the growth of hairs was quite noticeable.

I do not wish to take up more time with the subject. My object has been simply to submit an experience I have had and one which, up to the present, has been highly satisfactory to me. It is certainly to be presumed that, in the hands of others, the same results should follow the same line of treatment and be attended by the same success. That the methods I have described are infallible I certainly do not wish to claim; but that they are sufficiently rational to induce a trial I hope has been shown in the foregoing paper.

I do not desire to detail any successful cases, as I have already overstepped my limits in this paper. The methods I have described have been used upon quite a number of cases, and the successes which have been attained have led me to describe what might prove equally successful methods in the hands of others.

ON THE DIAGNOSIS AND TREATMENT OF ECZEMA SEBORRHOICUM.

Read in the Section of Dermatology and Syphilology, at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June 7, 1892.

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Eighteen years ago I had the honor of presenting to the American Medical Association, which then met in this same city of Detroit, an article upon "The Management of Eczema," which, as I have since learned, was the first article relating to diseases of the skin which had ever been printed in the Transactions of this Association. It has seemed therefore very fitting to again present here an article upon the subject of eczema, relating to a phase of it which was entirely unknown at the time I read the article alluded to.

In my former paper I attempted briefly to go over the subject of the nature of eczema and its proper treatment, and I dwelt largely upon the constitutional origin of the disease and its management by diet, internal medication and external applications. I endeavored to show that the eruption upon the skin was very commonly but an external manifestation or result of systemic changes, and that its treatment by no means related alone to the administration of arsenic and the application of zinc ointment, but that to properly care for the disease, every element should be taken into consideration which bears upon the life and health of the individual.

The position then taken I believe still to be wholly correct, and the title given to my article at that time, "The Management of Eczema," represents well the care and thought necessary to properly cure the disease.

On the present occasion, however, I wish to call attention, as clearly as possible, to certain features belonging to an eruption, certain cases of which at that time would have been classed as eczema, and would have been treated wholly as such, but which later years, and especially the last two or three, have shown to be a condition of the skin quite different at times from that ordinarily and properly called by the name of eczema. I refer to that form of skin affection which has now entered into dermatological literature under the name of *eczema seborrhoicum*. The credit is wholly due to Unna, of Hamburg, for first having called attention to this condition of the skin, and for having persistently advocated its claims for a number of years, until now I think it is thoroughly accepted by the majority of those who have much to do with dermatology.

Undoubtedly the great disease, eczema, has too often been made a receptacle for many diseased conditions which could not be otherwise named or classed, and as the science of dermatology widens, and more accurate knowledge is obtained, the proportion of affections which are thus classified will become materially lessened. In all large statistics of to-day, eczema is found to represent about one-third of all cases. Hebra first clearly differentiated pityriasis rubra and separated it from eczema, with which it had previously been classed. Certain forms of lichen were then differentiated, and lichen ruber, lichen planus, lichen pilaris, etc., were taken from its grasp. Many cases which are now recognized as dermatitis herpet-

iformis would formerly have been classed as erratic or unusual forms of eczema; the same may be said of some other affections.

Seborrhoic eczema has now won for itself a place in dermatology, and it is questionable in my mind if this affection about to be spoken of should really be classed as eczema, so different are some of its phases from those commonly recognized under this name. Many of its phenomena would seem to separate it entirely from this disease; Unna is very certain that it is of a parasitic origin, and in a recent letter to me, said that he hoped very shortly to be able to demonstrate positively the parasite to which it is due. For the present, however, the disease retains its old name, and will be classed as an eczema, although it is more than probable that within some years these cases will receive quite another designation.

According to Unna, the disease begins as a desquamative erythema, similar to pityriasis, and continues as such, or develops into an oozing eczema or into squamous or crusted, psoriasis-like eruptions. When it becomes vesicular, it is chiefly, according to him, from the effect of external irritation. To quote from Unna: "The true and essential cause is the inoculation of the germ, a germ for the most part probably of a vegetable nature. Eczema, however, is only produced when the germ proliferates in the epidermis and its appendages. To effect this it is necessary, according to the parasitic theory, that this affected epidermis should be a good nutrient basis, and this condition embraces actually everything which has been previously reckoned amongst the various predisposing and exciting causes. Between these two groups there exists no sharp boundary, the congenital nature of the skin (heredity), supervening diseases, especially such as alter the nature of the skin secretions (rheumatism, gout), those in the skin tissues, such as take place at the various periods of life (dentition, menstruation, climacteric), and other undercurrent diseases of the skin (acute exanthemata), can all be considered as predisposing causes, or better as preëxisting preparation of the nutrient base; external warmth, and most simple inflammations and stases, as well as the whole legion of external irritants, may be described as exciting causes, or better as accidental preparations of the nutrient base. That which is common to all these causes, *i. e.*, all the causes which have been discussed in the text-books up to this time, is that they can render the skin, and especially the epidermis and the nutritive fluids which penetrate it favorable to the growth of the specific germs." It must be stated here that Unna goes much farther than most of us are willing to go, and believes that the large majority of cases of eczema are parasitic. We can accept his views only so far as they relate to the special form of eruption which we are discussing, namely, seborrhoic eczema.

Unna has long maintained that the origin of seborrhoic eczema is in the scalp, and that a large share of the cases of ordinarily so-called dandruff are due to this cause; and he believes further that the infection of other points in the skin has its starting point from this locality.

While not accepting to the full the views here mentioned, I must state that, after having spent some little time with Dr. Unna, two years ago, I have been led to recognize the disease which he describes as relatively frequent, both in my public and private

practice, and large numbers of cases have been so designated and treated by me during the past two years. As an illustration of this, I may mention that among some three hundred cases of eczema seen in private practice during the past year and a half, since I have felt satisfied with regard to the matter, I find no less than seventy-four recorded with the original diagnosis of eczema seborrhoicum, or nearly one-third of the entire number. I may add that later knowledge of various other cases has repeatedly led me to look upon the eruption which I had formerly classed as simple eczema, as really belonging to this form of disease. I think, therefore, that I may safely say that one-third of all the cases which would ordinarily be called eczema may, without error, be designated eczema seborrhoicum.

What, then, are the features whereby we recognize this particular form of disease, if, indeed, it is a separate affection from ordinary eczema? In the first place, I will briefly state what I do *not* consider to belong to this variety:

1. I do not recognize this condition to be an element of any importance in connection with the ordinary cases of infantile eczema. I need not spend time in defining closely what I mean by this term, as all are familiar with the acute or sub-acute eczema of early life, coming very commonly first upon the cheeks of infants, and then upon the hands and forehead, extending over the head, and forming what is frequently known as "milk-crust;" this eruption I believe to be due largely, if not wholly to internal causation, relating to the nutrition of the child, and its nervous organization; time and time again we see the eruption appear with each derangement of its alimentary canal; time and time again the eruption will appear with each accession of a new tooth. This form of eruption, I believe then to be largely assimilative or neurotic.

2. I do not class as seborrhoic eczema those cases of eruption developing in the papular or vesicular form in early adult life, often first upon the hands, or about the head or face, and not infrequently coming upon the lower extremities; these cases I believe to be due to very similar causes to those belonging to infancy, namely, digestive or nervous agencies.

3. I do not ever recognize as seborrhoic eczema the eruption as it appears in middle life, in the red, congested form about the face, in what is known as erythematous eczema, where there is thickening of tissue, very great itching, and occasionally oozing of the surfaces irritated.

4. The eczema of old age coming upon the face and very commonly upon the lower extremities, is commonly due to impeded circulation, and the general lowering of the vital powers when the skin readily yields and becomes inflamed and irritated without any specific cause, and has nothing to do with seborrhoic eczema.

Lastly, I do not recognize as seborrhoic eczema the many cases of purely localized eruption, such as those seen upon the hands of washerwomen, and those engaged in irritating occupations, nor those which have their origin in external irritants of various kinds applied to the skin, nor those due to sluggish circulation connected with occupations requiring long standing, or those dependent upon varicose condition of the blood vessels.

All these conditions yield when properly treated by quite other means than such as are applied to

seborrhoic eczema. In infantile eczema, time and time again I have seen the disease entirely disappear slowly, with the internal administration of large doses of arsenic, without any external application whatever. In multitudes of cases in young, adult life and even in the aged, I have seen the eruption vanish when proper attention was paid to the various causes which are recognized as predisposing or exciting agencies. Every day we see eczema yielding to alkaline treatment, followed by proper tonics, when local measures, even of the most approved character have failed entirely to give relief.

But on the other hand, we do continually see cases of eruption, which formerly were classed as eczema, present very different manifestations at one time or another from those already mentioned, and we find them yield to a very different class of remedies, the credit of whose introduction and elaboration belongs to Unna. These we recognize as seborrhoic eczema, as will be detailed more fully later on.

Mention has already been made of the fact that Unna believes seborrhoic eczema to have its origin mainly, if not entirely upon the scalp, and I have repeatedly seen him base his diagnosis upon the fact that the patient had been subject to dandruff for a greater or less period of time. To this aspect of the case I have given very considerable attention, and while I am by no means prepared to go as far as he does in regard to basing the diagnosis upon such a feature, I can verify the fact that in a very large proportion of the cases which can be properly classed as belonging to this disease, this feature has existed to a more or less marked degree. I can also testify to the fact of the very greatest benefit accruing from the thorough and proper and systematic treatment of the scalp in these cases, although I cannot quite agree that when the trouble returns to the scalp the disease appears elsewhere by infection.

In the most marked cases of seborrhoic eczema of the scalp, there may readily be made out a greater or less development of tolerably well-defined, reddish patches scattered through the surface, often extending down beyond the margin of the hair, especially upon the forehead, in festoons of eruption, presenting a moderately reddish base with a considerable amount of more or less greasy scaling upon them. In the lighter cases, these sharply defined margins are not seen, but the scalp is covered to a greater or less degree with a layer of scales which are rather firmly adherent, but which continually dust off upon the shoulders as dandruff. Upon non-hairy parts the eruption is apt to assume more or less circinate shapes, forming circles or parts of circles of more or less definite outline, in size varying from a small point, up even to an inch in diameter. Within the ears the disease will often be manifested only as an undefined, diffused scaliness, accompanied with considerable itching.

The most characteristic and well-defined eruption of seborrhoic eczema is commonly found upon the chest, representing a condition which was formerly known as seborrhœa. The patches are often in the form of circles, touching one another, of a reddish yellow, slightly raised above the skin, and covered with a greasy yellow scale. These may extend over the back as well, and in a case recently under my observation the eruption, which was very extensive in the scalp, almost covering it with a coating of scales, extended also over nearly the entire body and limbs,

presenting hundreds of fairly defined circles, some of them up to an inch in diameter. In many places the eruption was not very well-defined, but the lesions ran into one another forming a rather diffused and irregular scaly surface. In this instance the patient was absolutely and entirely freed from the eruption by local treatment alone, of a character which will be described later.

In another instance, also in a female, the patches were much larger, more or less cleared in the centre, of a more dusky red, and with a considerable amount of scaling. In this instance it was very interesting to note that while on one arm, where the disease was very characteristic, it had yielded to local treatment, on the other arm, when rheumatism attacked the wrist, the eruption in the neighborhood became fiery red, formed papules and vesicles, and finally exuded, presenting the appearance of ordinary acute eczema. This was not due to any local application which had been made for the rheumatism, for nothing had been put upon it, except the treatment for the eruption; but the inflamed condition in this location was due as I believe, to the greater activity of the blood vessels of the part, and to the circulation of the acid products of rheumatism in the skin.

It is not to be supposed, however, that the lesions of seborrhoic eczema are always so well-defined and sharply outlined as might be inferred from what has been said; in many cases the patches of the disease are very indefinite in shape, present more or less of thickening of tissue, and give off relatively little scaling.

The itching of seborrhoic eczema is not ordinarily very great, although there is always more or less irritation, causing the patient to scratch somewhat; but seldom if ever, in my experience, does it call forth the terrible lacerations which are sometimes induced by true eczema, attended with great infiltration of tissue or the formation of deep vesicles.

The characteristic features of this eruption may be summed up as follows:

1. Seborrhoic eczema, in its most characteristic development presents well-defined, reddish or reddish yellow patches of varying size, generally with rounded outlines, though also apt to be irregular in shape; some lesions may be papular, and occasionally large areas, of several square inches are found. There is little if any thickening of the skin, and seldom moisture, unless the part has been much irritated.

2. On the scalp the disease is apt to be very diffuse, presenting mainly a scaly or pityriasic condition, producing much or little dandruff. When this condition has long persisted there is apt to be baldness.

3. It is claimed by many that the eruption begins thus on the scalp and extends downwards by infection; its development is often found to support this view, and it is most frequently found on the face, centre of the chest, back, arms, etc.

4. There is generally a considerable amount of itching to seborrhoic eczema, especially on the scalp, but it is seldom of that intense and distressing character belonging to inflammatory eczema, with papules and vesicles, or even with erythematous lesions.

5. Seborrhoic eczema appears at times to be moderately contagious.

The *diagnosis* of eczema seborrhoicum should not be very difficult, if due regard is had to the disease as it has been described; in some instances, however,

one will be somewhat doubtful as to whether an eruption should be thus classed as an eczema, or whether it belongs to some quite different affection. Certain cases of *tinea versicolor* will resemble eczema seborrhoicum, when the patches are small and scattered over considerable surface; but on the other hand there is a certain tawny or fawn color to the former disease which does not belong to the latter, and there is a peculiar, slippery feeling to the patches of *tinea versicolor* which is quite different from that experienced in eczema seborrhoicum. If there is any doubt the microscope very readily settles the question by exhibiting the characteristic branchlike mycelium or groups of spores belonging to *tinea versicolor*, which, of course, would never be found in the other eruption.

Certain cases of very superficial *tinea trichophytina* will sometimes resemble eczema seborrhoicum quite closely; but they are more sharply defined, the scaling is of a rougher character, upon the non-hairy parts the circles are more sharply cut and tending to clear in the centre, and finally the microscope shows a gross parasite in the *tinea* eruption which is absent in eczema. Upon the scalp *tinea* will always manifest itself by the broken hairs, which are absent in eczema seborrhoicum.

The diagnosis between *psoriasis* and eczema seborrhoicum will sometimes be not a little difficult, especially when the lesions of the former disease are quite superficial, when they tend early to clear up in the centre, and when they do not manifest their characteristic scaling to a marked degree. In some instances it is only possible to decide the matter absolutely by a therapeutic test, when the remedies appropriate to eczema seborrhoicum will readily clear up the eruption, and will not affect to any great extent that of *psoriasis*. In almost every instance, however, the very characteristic location of *psoriasis* upon the extensor surface, and the tendency of eczema seborrhoicum to attack the flexor surface, will aid in the diagnosis. Some of the more superficial, large and scaly papular and tubercular *symphidides* will occasionally resemble eczema seborrhoicum, but generally there are other features which aid in completing the diagnosis.

Such being then the clinical features and diagnostic differences of the eruption under consideration, it remains to say a few words in regard to its nature and nosological position before speaking of its treatment.

As mentioned before, Unna hopes to shortly demonstrate the parasite causing the eruption. As is well known, there are a very large number of microorganisms to be found continually on the skin, both in health and disease; if I remember rightly, some thirty or more distinct forms have been demonstrated. Some of these may be, and undoubtedly are, pathogenetic; the larger number of them are, as far as is known, perfectly harmless. As these all belong to the forms of micrococci, and are quite different from the easily recognized vegetable parasites of the skin, and are determinable only after the most painstaking operations, and with very high power lenses, it is readily seen that the accurate determination of this question is beset with the greatest difficulty; it is moreover doubtful if ever the processes could be so simplified that the general practitioner could determine the organisms in the same manner as those of the ordinary vegetable parasitic diseases are readily demonstrated.

But on the other hand, the clinical evidence points strongly to the presumption that the eruption is due to an external cause, as does also the treatment, and the same would also indicate this cause to be microphytic in character.

We are not, however, from our present knowledge of the eruption, prepared either to give it a new name, or to separate it entirely from eczema, inasmuch as in some cases the eruption may, in certain portions at least, closely resemble eczema, arising apparently from other causes. We are certainly not ready yet to place it among the parasitic diseases. As far as is yet known eczema seborrhoicum does not appear to be contagious in the ordinary sense of the word, although if due to a microorganism it must, to a greater or less degree, be of this character, though so slightly as not to attract attention clinically.

The treatment of eczema seborrhoicum is relatively simple in the main, and although individual cases may occasionally give trouble, the eruption commonly yields very well, for a time at least, to rightly directed external measures, and in this respect stands often in striking contrast with other forms of eczema.

Thus far little, if anything, is known in regard to any special internal treatment for this phase of eruption, other than that belonging to eczema in general. Undoubtedly the special microorganism, if such be its cause, requires a specially fitted soil on which to find lodgment and flourish; for, as before remarked, there are many, many varieties or forms of microorganisms found on every skin, and all are undoubtedly exposed to their action, if only the tissues are in a condition to be attacked.

The internal treatment, therefore, should not be neglected, but every endeavor should be made by hygienic, dietary and therapeutic measures to place the system and the skin in the most healthy condition possible; in other words, all the means appropriate for ordinary eczema most assuredly aid in curing the eruption, and rendering the patient immune from the same.

The local treatment of eczema seborrhoicum is immensely important, for with rightly directed measures the eruption generally yields quite readily, while otherwise it is apt to be extremely rebellious. To Unna, again, belongs the great credit of having introduced an efficient treatment for the eruption under consideration. Believing strongly in its parasitic nature, he has advocated mild parasiticides, and in them we find the means of cure. It is well, however, to remember that the eruption is still called *eczema seborrhoicum*, for that indicates in a measure the delicate or irritable condition of the skin, and the necessity of caution to guard against too great stimulation or irritation.

The two remedies which Unna emphasizes as of value in this eruption are resorcin and sulphur, but other mild parasiticides are also often of value, such as diluted white precipitate ointment and other weak mercurial preparations, and in certain cases tar and its derivatives prove of much service, especially when there is much itching.

The most brilliant results in this eruption are often obtained upon the scalp, where in the majority of cases it will yield with great facility to resorcin properly applied. The formula which I most commonly employ is as follows: R. Resorcin 3ij, spiritus vini rectif. 3iij, glycerini 3iv, aqua rose ad 3iv. This is to be applied by means of a medicine dropper

inserted among the hair, so that the scalp itself is thoroughly moistened with it, morning and night, it being gently rubbed into the roots of the hair by the finger tips. After five days the scalp is thoroughly shampooed with tincture of green soap (*R. Saponis viridis 3ij, spts. vini rectif. 3j*), and thoroughly rinsed and dried with hot towels, after which the scalp is again wet with the resorcin lotion. These applications are continued for a week or so, night and morning, when the shampoo is repeated, and the resorcin lotion immediately reapplied; after this, generally, one thorough application each night is quite sufficient to keep the scalp free from disease.

In some cases, however, the resorcin is not well borne in the strength mentioned, while in others it may be somewhat increased. When it is not well borne, a mild white precipitate ointment, ten to twenty grains to the ounce will generally act well, though in some cases it will be necessary to use a tannin and carbolic ointment alternately with the resorcin.

Upon the non-hairy parts the same lotion will often act very well, but more commonly an ointment is required. In order to demonstrate the power of the resorcin I have frequently employed it most satisfactorily alone, in cold cream or vaseline, in a strength of 4 or 5 per cent., but commonly it is added to zinc ointment, as forming a more solid base.

When the eruption resists, sulphur is added to the ointment. (*R. Resorcin 6j, sulph. precip. 3ss, zinci oxid. 3ss, unguent aquæ rosæ, 3j. ㊄*.) and under this the lesions will often fade very rapidly.

If the eruption becomes moist and inflamed, then usually ointments are not so well borne, and recourse is had to the well known calamine and zinc lotion, to which a little resorcin is added (*R. Resorcin, 3j, acid. carbolicæ, 3ss, pulv. calaminæ prep. 3j, zinci oxid. 3jj, glycerini, 3iij, aquæ calcis 3iv, aquæ rosæ, ad fl. 3iv*). This is freely sopped on the part several times daily, the powder in it being allowed to adhere and form a protective coating over the inflamed parts. If the coating becomes too thick, or the surface hard or cracked, then a little vaseline or cold cream rubbed gently over it will convert it into a soothing ointment, after the removal of which the lotion may be reapplied later.

In some cases of eczema seborrhoicum a long continuance of the disease, and the scratching incident thereto will have produced thickened patches exactly like those having their origin from other causes. In these cases quite other treatment may be necessary, and tar ointment properly diluted, oil of cade, diachylon ointment and even some of the stronger mercurials may be necessary to secure absorption of the effused lymph.

As may be inferred from what has preceded, the prognosis of eczema seborrhoicum is generally a very favorable one; and in this respect, as regards the duration of treatment at least, it is very different from that of eczema of neurotic or internal causation.

The limits of the paper have prevented my going into the subject of eczema seborrhoicum as fully as I should have wished, and I should have liked, moreover, to have adduced some striking personal cases which might make some points more clear. I have, however, attempted to present the subject as clearly as possible, and trust that I have been able to interest you in this phase of eruption, for which so much

can be done if properly understood, and I hope that the subsequent discussion will throw yet more light on the subject.

It will be seen that I still call the disease eczema seborrhoicum, but I have yet some doubt as to whether it belongs properly to eczema as we understand it from literature and the experience of the past. I must, however, reiterate my opinion that although, as I have mentioned, the eruption yields largely to local treatment I believe that we will fail to do our patients the largest amount of good if we regard it as a purely local eruption, and for the permanent cure of the disease I believe that thorough internal treatment is necessary in combination with the local measures which have been mentioned.

4 East 37th Street, New York.

THE THIRD ANNUAL CONFERENCE OF THE HEALTH OFFICERS OF THE STATE OF INDIANA.

This conference was held at Indianapolis, Ind., April 27, in the Board of Agriculture rooms of the State House. It was a very interesting session.

The roll call showed sixty-eight secretaries present and about forty-five counties represented.

THE NECESSITY FOR PREVENTION AGAINST CHOLERA.

BY JAMES F. HIBBERD, M.D.,
OF RICHMOND, IND.

Asiatic cholera is indigenous in a certain part of maritime India, and is annually transported to other parts of the same country, and at longer periods to regions outside of India, and occasionally spreads over the civilized world wherever travel and commercial traffic extend.

In India holy Mohammedan shrines are located in regions where cholera is epidemic, and in some years nearly all pilgrims who visit these shrines—and they are legion—contract cholera, and 80 per cent. of those attacked die, and even in more enlightened countries, where the inhabitants are negligent and filth abounds, 80 per cent. of those seized perish, while at other times and places where more care exists, or the epidemic is milder, 30 per cent. is the limit of fatality.

A few hours often suffice to carry a stout individual from apparent good health through the tortures of cholera to death, and in all fatal cases a few days at most cover the issue, if acute.

The disease is readily portable. For a year it has existed in Western Asia and in many places in Europe, but especially in those parts abroad where commercial traffic, travel and emigration have had their higher development, making it altogether probable that the shores of America will be reached through some of these channels in the near future.

Within the last decade our knowledge of cholera, its cause, how its cause becomes disseminated and impregnates its victims, and how the dissemination of its cause may be averted and its impregnation of persons prevented, has advanced so rapidly as to be now almost perfect.

It is the fullness of our recognition of the cause of cholera: of its ready transportation and the channels through which it travels; of the lines and methods by which it invades new territory; and of its easy arrest and destruction by measures within our reach, that places upon us an imperious necessity to exert ourselves for its prevention.

To prevent cholera we must emasculate its cause,

and to be able to emasculate its cause we must study the nature, attributes and power of that cause. Time does not admit of an extended discussion of this subject on this occasion, and I will therefore content myself by presenting my views in the similitude of a series of aphorisms which, while seemingly severely dogmatic, are, in my estimation, fully supported by the latest investigations of competent observers.

Bacteria are immense numbers of microscopic vegetables so small that the highest magnifying power has found specimens too minute for correct description. Medical bacteriologists for convenience distribute these microscopic plants into three classes—a round one is a micrococcus, a straight filament is a bacillus, and a spiral filament is a spirillum. These designations signify nothing but form and are simple aids to reference, but other attributes are many and important to sanitarians. Bacteria are found everywhere; in the water, in the atmosphere, in the soil, on and in man and all animals, and on everything man and animals eat. Most of them are harmless, many of them are salutary and contribute to animal health and longevity, including man, and only fifteen of them have so far been satisfactorily proven to be the direct cause of disease in man, each of which excites a specific disorder that has no other origin. It is on these lines that physicians and sanitarians investigate and consider bacteria, but botanists make extensive subdivisions of them into genera, species and varieties according to the rules of botanical science.

The essential factor in the genesis of cholera is the spirillum cholerae Asiaticæ, almost universally known by the name, comma bacillus, given it by Koch. It is a small microbe about the $\frac{1}{250000}$ of an inch in length and one-third of that in transverse diameter. We can hardly conceive of a living thing so minute. It would require 1,000 of them, placed end to end, to extend $\frac{1}{25}$ of an inch, and a sphere of the size of a drop of ordinary fluid would contain 523,600,000 of them. This microbe entering the alimentary canal of man, finds in the small intestine the conditions suitable for its development and reproduction, and it at once enters into an active and prosperous career, multiplying so rapidly as to be almost beyond conception. It breeds by each spirillum dividing itself into two spirilla and each of these into two more, and so on. This division has been seen to take place in the laboratory in twenty minutes after a spirillum had been planted, placed in a suitable culture medium; but let us suppose such division to be complete once an hour, a simple calculation will demonstrate that at the end of twenty-four hours the descendants of this one microbe would number 16,777,216. As it must be a rare thing for a person who swallows such a microbe to swallow only one when a drop of fluid may contain millions, we can readily understand why, when a person becomes affected with cholera, he is so quickly, so severely and so dangerously diseased. The life tenure of the cholera spirillum is not known; probably whenever one of them, of whatever age, divides there are two young ones, and this division and regeneration continues as long as pabulum is abundant and environment satisfactory. If a garment in Russia were soiled with cholera discharges, wrapped up moist, packed in a trunk and transported by easy stages to Indianapolis, it would reach its destination charged with living, active germs of cholera.

THE TENDER MICROBE.

This microbe is, however, a delicate plant, and can propagate only within relatively narrow limits. It can not survive in a temperature above 126° F., nor below 57°, and its active life is confined to a temperature between 70° and 108° F. It cannot multiply, though it can live, in pure water, but in water containing organic matter in solution it flourishes in a high degree, as it does also in damp soil containing organic matter. Hence foul lakes, ponds, rivers, wells and cisterns, and wet soils, drains and gutters, and sewage are favorite habitats and breeding places for the cholera spirillum. As already stated, it can not live in a temperature below 57° nor above 126° F. Drying kills it, the most contaminated clothing, bedding or other fabric, or soil, when completely dried, are clear of every living cholera germ, nor can it survive in acids or strong alkalies. It is, in fact, a very tender and fastidious plant, must have temperature and food just suited to its taste, or it will perish. Surely an enemy so dreaded as the cholera spirillum, whose frailty we clearly understand, and whose many vulnerable points we well know, ought to fall an easy victim to our cultured and energetic germicidal skill.

Prevention of cholera in this country demands consideration of four distinct problems: 1. To keep the spirillum from entering the United States. 2. To prevent its transportation from any focus it may establish in the interior of the country. 3. To protect the individual from receiving the spirillum into his intestinal canal; and fourth, to create and maintain in each individual such condition that though he be invaded by the spirillum he will successfully resist it.

Touching the first preventive problem it may be positively asserted that if it can be successfully accomplished, there will be no ground for further anxiety. Cholera is indigenous only in India, and whenever it is found in other parts of the world it has been transported there from India, directly or indirectly. The duty of securing the exclusion of the cholera spirillum from the United States devolves on the authorities of the Nation, the States and the municipalities serving on the frontiers of the Republic, and these authorities are so alert, so thoroughly posted in the requirements of the situation, and so well equipped to make their work effective, that we may safely rely on them to do whatever can be done in this behalf. But their utmost vigilance may fail, and it is obviously the reasonable duty of the States and communities of the interior to take such precautions in advance as would be demanded if it were certain that the scourge would visit every locality.

To limit the diffusion of the cholera, should it enter the country, is the second problem of prevention. In this behalf we have but to study the character and habits of the cholera spirillum to realize that the first duty exacted in anticipation of the cholera is to clean up all foul places; not that filth causes cholera directly, but we have seen that the spirillum breeds in all neutral fluids that hold organic matter in solution, and we must, to the extent of our ability, rob it of a breeding place. And furthermore, filth vitiates the atmosphere, and undermines that sound health upon which every one who chances to receive a cholera germ into his intestines must rely to resist its pathogenic influence.

If, notwithstanding these prophylactic precautions, a case of cholera appear in any community, the pa-

tient should be isolated at once and be waited on by intelligent and industrious attendants, who would diligently care for all discharges and promptly disinfect them with heat, dry or wet acid or other disinfectants. If these suggestions be accurately and without accident executed in behalf of the first cholera patient in any locality there will not be a living spirillum from him left to generate a second case.

To prevent a person from swallowing the cholera spirilla in a virile state when he is in their presence is the third preventive problem, and is not a difficult thing if such person clearly comprehends the nature of these spirilla, and is thoughtful enough to conduct himself according to the light and knowledge of the day respecting them. Cholera is not contagious: *i.e.* it does not pass directly from the ailing to the well, like small-pox or scarlet fever, for the reason that the bacilli of these disorders are found on the surface of the body, having been carried there by the blood, and may be communicated by direct contact, or may be desiccated, float in the air, and be carried by currents to the attendants, while the cholera spirillum, like the bacillus of typhoid fever, is harmless unless conveyed to the small intestines through the mouth and stomach; and further, like the germ of typhoid fever, it never appears in the blood nor other humor of the body except the secretions of the bowels, and these are so easily disinfected that no discharged spirillum ought to escape destruction. The germs of some diseases may float in the air and infect those to whom they are borne, but not so with the cholera spirillum; when it becomes dry enough to be volatile its vitality is gone. Accordingly, the agent which carries the germ of cholera must be a fluid, and in fact, drinking water is the most general, though not the exclusive means of conveying cholera germs to individuals, and all danger from this source may be avoided by drinking only water that has been boiled and afterward protected from contamination, or such as has been made sour by lemon juice, vinegar, tartaric acid or other vegetable or mineral acid. Some years since a learned and thoughtful medical superintendent of a hospital for insane women in Philadelphia arrested an outbreak of cholera in the institution by having all the inmates drink systematically of a so-called lemonade made of sulphuric acid. Persons engaged in washing fabrics contaminated by discharges from the bowels of the victims of cholera may become infected by thoughtlessly passing a soiled finger to the lips, or a drop of the washing fluid—perhaps containing millions of spirilla—may be splashed into the mouth and, unless immediately neutralized by washing out the mouth with a vinegar or other disinfecting lotion, may pass into the intestines and inaugurate the disease.

FOOD SHOULD BE COOKED.

Uncooked food may also carry the germs into the bowels if not purified or proper care taken, but this danger is minimized for the reason that food excites gastric juice, gastric juice is acid, and a cholera spirillum can not pass a stomach that contains an acid fluid. In the matter of establishing and maintaining in the individual a power or condition that will resist the pathogenic energy of the cholera spirillum, which is the fourth preventive problem, there is no mystery and but little art; to attain and enjoy average good health, physical and psychical,

covers the whole ground. Every person in a civilized community is more or less exposed to the causes of disease, but by a natural law of the human organization such a resisting power stands always in defense, so that the many escape; only the few succumb. Without claiming that the person in good health has no liability to cholera, it is sound doctrine to hold that good health is the chief factor in the preservation of those who escape the cholera while exposed as are their fellows who suffer.

Accepting this dictum, it follows that a person in health when cholera invades a community should make no change in his habits of diet, exercise or rest, nor should such an one take any drug or preparation to improve his powers of resistance, under the false and mischievous conceit that good health can be made better.

Much error exists in the popular mind—and in some professional minds also—regarding food during cholera epidemics. Many insist on wide departure from ordinary articles, however good and satisfactory they may have been before cholera was present, with the frequent result of disturbing good health and depressing the resisting power of the system to the extent that admits an attack of cholera that otherwise would have been avoided.

However important it may be that improper food should be discarded, the general rule should be that whatever was found safe, sound and sustaining when cholera was afar off, is good food when cholera is at our door or in our dwellings, and the same rational rules should guide in the matter of beverages; what is best for everyday health should be adhered to on the approach and in the presence of cholera.

While insisting on the proper physical conditions in man and his surroundings as preventive of cholera, I do not forget that his psychical status, equally, on its approach, adds immeasurably to his liability to have it. Fear subtracts from man's resisting power as much as bad food or unclean environment, perhaps more, and anger or other emotional excitement is not far behind it in mischief. The true rule should be to make every rational preparation for a visitation of cholera, then calmly wait, each trusting in full faith to his own manhood and the mercy of the great Father of all.

Should some one inquire how it is, granting all these statements to be true, that cholera can exist at all, my answer would be that in the first place the facts herein set forth are not universally recognized; and secondly, even where fully appreciated and their application attempted with intelligent earnestness, there are so many dark corners that defy complete inspection, and not infrequently accidental or intentional deception permits the germ to pass the lines of defense unnoticed.

And still further, cholera is frequently so sudden in its onset and so rapid in its career, especially in discharges from the bowels, that many sufferers, notably the poor and isolated, scatter untold millions of the germs in and about the premises where they are seized before they are aware that they have the cholera or receive proper attention, and thus the disease perpetuates itself in spite of sanitary knowledge and the most untiring activity.

Dr. Hibberd's lecture before the convention of health and sanitary officers caused considerable discussion. The statement that cholera could not

survive a temperature higher than 126° nor lower than 57° Fahrenheit was especially questioned, and the fact that it lived through a Russian winter was cited to prove the incorrectness of the statement. Prof. Berg wrote Dr. Hibberd for a clearer explanation of his position, and received the following letter:

RICHMOND, Ind., May 5, 1893.

D. N. Berg, Indianapolis, Ind.:

Dear Sir:—Your note of the 3rd inst. states that parties listening to my address before the sanitary conference on the 27th ult. have since made a double inquiry, which may be restated thus: If my figures of the temperature limits of the life and activity of the cholera spirillum are correct how is it that cholera has prevailed to some extent in Russia all winter? I reply, there is a slight but immaterial difference in the observations of bacteriologists touching the extremes of temperature within which the cholera germ may live and multiply. Sternberg in his great work, "Manual of Bacteriology," published within the year, says, page 504: "The thermal death point of the cholera spirillum in recent cultures in flesh-peptone-gelatine as determined by the writer (1887) is 52° degrees c." The equivalent of 52° degrees centigrade is 125.6° Fahrenheit. On page 501 he says the germ "does not grow at a temperature above 42° degrees or below 14° degrees c," equivalent to 107.6° degrees and 57.2° degrees Fahrenheit respectively, and on the same page he describes the "gelatine plate culture at 22° c," equivalent to 71.6° Fahrenheit. Omitting fractions these are the figures used in my communication to the sanitary conference.

Touching the cholera in Russia it will be observed that the extent of its prevalence during the winter has been but a fraction of its extent last summer and autumn. This was doubtless due to the frost limiting its transportation and killing all germs exposed to its direct influence.

But the houses of the Russians, including the living rooms, cookeries, most of the mercantile establishments and industrial institutions are kept warm, in most of them probably the temperature not at any time falling below the fatal 57° , and the germs thus preserved finding their way to human intestines meet with temperature and other conditions suited to their rapid development. This is the whole story of winter cholera in Russia and every other country that has a winter temperature.—Yours respectfully,

JAMES F. HIBBERD.

SOCIETY PROCEEDINGS.

Medical and Chirurgical Faculty of Maryland.

Ninety-fifth Annual Meeting held April 25, 26, 27, 28, 1893.

Dr. L. McLane Tiffany delivered the President's address,

THE TREATMENT OF NEURALGIA OF THE TRIGEMINAL NERVE
WITH SPECIAL REFERENCE TO THOSE MEASURES OF RELIEF
WHICH ARE OBTAINED BY INTRA-CRANIAL EXCISION
OF THE GASSERIAN GANGLION.

It is not necessary to define neuralgia, but a trigeminal neuralgia has certain peculiarities. The anatomy of the Gasserian ganglion and its three branches is known to all, but the difficulty of getting at them in the living person is little appreciated except by those who have tried. This neuralgia differs from ordinary neuralgia in being paroxysmal and is probably the most painful that one has to do with. There are periods of absolute quiet between the paroxysms. The changes seen in the parts supplied by this nerve and its branches are very slight in proportion to the pain the patient feels. There is generally no change at all or at times a slight glazed appearance of the skin and very rarely there has been atrophy of the muscles supplied by this nerve.

The age at which this form of neuralgia occurs is a most important etiological factor. It generally occurs in persons over forty, but one case in a woman of twenty-seven has been reported. Another etiological factor is that there are certain points of pain where the nerve makes its exit through the bone. When the surgeon has been called in, the treat-

ment by drugs has been exhausted. Quinine and arsenic are drugs that do the most good and it was formerly supposed for this reason that these neuralgias were malarial, but the more recent discovery of the plasmodium malarie has shown that this is not always so. The next best drug is aconitia pushed to its full physiological effect; also antipyrin and antefebrian have been used with good effect. The surgical methods are section of the nerve, stretching, and excision more or less far back. These are the three surgical methods used at the present day. Excision of the nerve was first done by Carnochan in 1858, and his operation was classical. The patient on whom he operated was a physician of the State of Maryland, in Caroline county. His operation was successful. Obalinski operated on a case several times but relief was not permanent. There are numerous ways of getting at the nerve. We may take it from in front or from behind. Rose and Anderson of Chicago, were the first to take it from behind. Horsley has also done it in this way.

Tiffany has operated twice in the head for intractable neuralgia. Both cases had been operated on before and one several times. In one case excision of the upper jaw nerve had been done. In his first case, which was a woman, he went through the side of the head, exposed the side of the head, raised up the dura mater until he arrived at the middle division of the fifth, put a string around it so as not to lose it, then scraped back the dura with a dental instrument which he had slightly dulled, and brought the ganglion into sight. It was a novel sight to him to see the Gasserian ganglion exposed to view in a living person. The lower division of the fifth nerve sends a motor branch to the muscles of mastication and in operating it is very hard to leave this motor branch untouched. When the head is first opened the brain swells up and fills the entire space and it seems almost impossible to get at the nerve, but when the shock came on in this case the brain shrank and got smaller and made operating possible. He did not pour cerebro-spinal fluid or blood into the head as had been recommended, and he did not suture the bone but the fascia. He wounded the dura but no harm came of it. The patient got well with no temperature. There was at first entire anæsthesia of the parts supplied by the middle and upper branches of the nerve, but there was no paralysis at all and pain ceased from the time she went under the anæsthetic and she had no suffering at all. For two days the dressings were soaked with cerebro-spinal fluid from the wound but he took off the dressings and took out the wire on the third day and everything was healed. The patient has been kept under observation for some time after the operation, and she has had no relapses.

The second case was a man, and was much like the one just related, but there was much intra-cranial oozing. The second division of the fifth was involved.

Dr. F. C. Bressler read a paper entitled

A CASE OF ACUTE INFECTIOUS PERIOSTITIS OF THE FIBULA
WITH EXHIBITION OF PATIENTS.

Dr. Wm. H. Welch:—Dr. Bressler has mentioned the occurrence of acute periostitis as a sequel or complication of an infectious disease, and has mentioned the various organisms which may be found. A point of interest is whether the complication is due to the same organism that caused the primary disease or to secondary invaders. He had examined a case of periostitis of a rib following typhoid fever and had found the typhoid bacillus in pure culture in the inflamed periosteal tissue. It is probable that the typhoid bacillus is capable of producing this complication. The ordinary pyogenic micrococci are, however, the usual cause of a complicating periostitis.

Dr. W. B. Platt then read a paper entitled "Plastic Surgery of the Face, illustrated with Cases."

This was discussed by Dr. A. K. Bond, who said that these glands could sometimes be reduced by the judicious administration of iron and cod-liver oil.

Dr. Charles O'Donovan read a paper of local interest on "Is Baltimore supplied with Good Drinking Water?" in which he advocated the municipal control of the water sheds of the streams which supplied the reservoirs of Baltimore's water supply while such land could be obtained at a small expense. This was discussed by Dr. Wm. B. Canfield.

Dr. Wm. F. Lockwood read some very interesting "Notes on Measles from Seventy-nine Cases in an Institution." This was a statistical report with the course of the cases and the complications.

Dr. R. B. Norment of Hampden, asked whether he noticed any great interval between the onset of the disease and the appearance of the eruption, and whether the length of time bore any relation to the severity of the disease. He had noticed that when the outbreak of the eruption was long delayed the case was generally worse.

Dr. Lockwood replied that he did not notice any such thing referred to by Dr. Norment in the cases he had reported; in one case the eruption did not appear until the 12th day and yet the case was very mild and ran its course without complications.

Dr. W. T. Howard, Jr., read a report of

A CASE OF DIPHTHERIA OF THE HEART.

A man thirty-four years old was admitted to the Johns Hopkins Hospital on November 7, 1892. He was a laborer. On admission he had weakness, diarrhoea and pain. His family history was negative; he was well built, and said he had never been ill before; he had temperature of 101° , pulse 86, lungs were normal, apex beat in fifth intercostal space, heart sounds clear, after three days his temperature was 100° in the morning and 103° in the evening; his spleen was not enlarged. The man grew worse and died on the 17th day of his stay in hospital. At the autopsy there was found a large thrombus in the mitral valve of the heart and extending into the cavity; the whole spleen was an infarction and there were numerous infarctions in the kidneys. Cover slip preparations were made from this thrombus in the heart and an organism was found morphologically indistinguishable from the Klebs-Loeffler bacillus. Cultures were made with the same result. His bacillus has not so far killed animals but it is a pus producer. Its first action seems to be death to the cells.

Dr. Wm. H. Welch: Dr. Howard's observation is one of unique interest. It recalls the old name of diphtheritic endocarditis which, however, was based on anatomical resemblances. The bacillus found in abundance and in pure cultures in the cardiac vegetations, the splenic and the renal infarction differed in no respect morphologically or in cultures from the Klebs-Loeffler bacillus of diphtheria. It had been carefully studied, not only by Dr. Howard and Dr. Welch, but also by Dr. Abbott of Philadelphia, and Dr. Councilman of Boston. The failure to prove it pathogenic to guinea pigs does not suffice to distinguish the bacillus from the genuine bacillus diphtheriae, for it has been shown by Roux and Yersin, Abbott and others that the latter may be also devoid of such pathogenic power at the time of isolation in cultures. Dr. Howard's case is the first to be recorded in which the bacillus diphtheriae or an organism closely resembling it has been found as the cause of malignant endocarditis. This observation is furthermore of interest as an example of the penetration into the circulation and the internal organs of the bacillus of diphtheria.

Dr. Wm. Lee Howard: To what extent are the endothe-

lial cells destroyed? What percentage of them are destroyed?

Dr. J. C. Harris: Were there any signs that the man died of syphilis?

Dr. W. T. Howard, Jr.: Wherever the bacilli came into contact with the tissues the endothelial cells were completely destroyed. The man denied ever having had syphilis and even said he had never been sick at all and there were no signs of syphilis at the autopsy.

Drs. George H. Rohé and J. Percy Wade, read a conjoint paper on

THE HYPODERMIC INJECTION OF SOLUTIONS OF MAGNESIUM SULPHATE AS A PURGATIVE.

The authors had had excellent results in producing purgation by the hypodermic injection of small quantities of magnesium sulphate. In reply to Dr. H. M. Carter, Dr. Rohé said the stools produced by this means were characteristic stools of the salt.

Dr. Edward Anderson of Rockville, then read a paper on "Calomel."

Dr. John S. Fulton of Saulsbury, reported

A CASE OF SUBCUTANEOUS EMPHYSEMA COMPLICATING MEASLES.

Dr. Wm. H. Welch reported briefly the results of an autopsy which he had made upon a case of pertussis with general subcutaneous emphysema resulting from laceration of the lung tissue and the entrance of air into the interstitial tissue of the lung, the root of the lung, the mediastinum and thence into the general connective tissue of the body. Dr. Northrup of New York, had published an interesting paper upon interstitial emphysema resulting from whooping cough.

Dr. W. A. B. Sellman then read a paper on

THE TREATMENT OF METRITIS AND ENDOMETRITIS BY THE ELECTRICAL CURRENT,

in which he referred to cases treated by himself by this means and advocated its use in cases where many would use the knife.

Dr. H. A. Kelly said he differed materially from the opinions just set forth by Dr. Sellman and it was important for men to differ in order to test a method. He does not believe in this kind of treatment. He does not think that such a condition as chronic ovaritis exists. He has seen cases injured by this method of treatment.

Dr. Sellman replied that he knew from experience that there was much good in this method of treatment and as for saying there was no such condition as a chronic ovaritis, why should the ovary not be chronically inflamed? Do we not have a chronic nasal catarrh?

Dr. H. A. Kelly then gave a short history of

MODERN GYNECOLOGY, ILLUSTRATED WITH STEREOPTICON VIEWS.

The views had been taken to show how he operated at the Johns Hopkins Hospital and very well exhibited the various stages of an operation from the entrance to the operating room, the cleansing of the patient, the anaesthesia, to the closing up of the wound and the result.

Dr. A. K. Bond then read an article entitled "The Present Status of Drug Therapeutics as applied by the General Practitioner."

The special subject was then taken up. It was on

PUERPERAL INFECTION WITH SPECIAL REFERENCE TO AUTO-INFECTION.

Dr. J. E. Michael spoke on the Etiology and Prophylaxis, Dr. J. Whitridge on the Bacteriology and Dr. T. A. Ashby on the History and Treatment. This was discussed by Drs. Wilmer Brinton, W. S. Gardner and L. E. Neale. There was very little new brought out except the results of Dr. Williams' bacteriological studies which tended to show that

puerperal infection was due to no one organism but that several pyogenic organisms and others might be the cause. The general opinion seemed to be that while auto-infection was possible, hetero-infection was much more common.

Dr. William B. Canfield then read a paper on

SOME CLINICAL ASPECTS OF IMMUNITY,

in which he advocated that few persons were naturally immune, that second attacks were by no means so common as was generally believed, and thought that diseases that left no trace were more apt to be reported as recurring than diseases such as small-pox, which left a decided mark. He did not deny second attacks. He thought that drug eruptions such as scarlatiniform erythema are often reported as scarlet fever.

Dr. I. E. Atkinson said that the mistaking of drug eruptions for the eruptive diseases was by no means uncommon. He objected to the term *rötheln* but used *rubella*.

Dr. E. M. Schaeffer then read a remarkably clever and interesting paper on "An Ounce of Prevention; or what the Poor Man can do to Escape Cholera—and the Doctor."

Dr. H. J. Berkley read a paper on "General Paralysis in the Negro Race."

The annual oration was then delivered by Dr. Reginald H. Fitz of Harvard University. His subject was

INTRA-PERITONEAL HEMORRHAGE.

The causes are various. It is not always a disease peculiar to woman. Mild and fatal cases occur in man, but not often. Blood vessels may break from weak walls, wounds from without or from crushes. Hidden causes demand prompt attention, as an aneurism, which is irremediable, tumors of the liver, pancreas and other abdominal organs. Hemorrhagic pelvic peritonitis may be caused. The blood is poured out according to the force of the heart and may form a hemo-peritoneum which may prove fatal, or the blood may be absorbed or it may break out, or it may form a hematocoele which will discharge the blood to some dangerous place if it breaks. It is very serious if it break into the bladder. The diagnosis of intra-peritoneal hemorrhage is not easy, and an exploratory incision may have to be done. The person suddenly collapses, which may make us suspect this condition even though we can find no physical signs. The treatment depends on the cause. It is more apt to be an aneurism in man and an ectopic gestation in woman. The sudden collapse with the recognition of a smooth, large tumor in the abdomen may cause a suspicion of this trouble, and immediate operation is necessary.

Dr. John C. Hemmeter then read a paper entitled

BIOLOGICAL ASPECTS OF BLOOD AND BLOOD VESSELS.

Blood is something more than a fluid; it is a tissue. The capillaries partake of the nature of glands, and there is no sharp line to be drawn between digestion and absorption. The capillaries, as glands, affect the character of the blood as it passes through them.

Dr. Wm. H. Welch:—The suggestion as to the function of the capillary walls as modifying the action of the blood is a subject to which Heidenhain has given much attention, and his name should have been mentioned, for he deserves the credit. It is evident that the vessels exercise some sort of elective action on the blood, and are not mere filters.

Dr. A. L. Hodgdon then read a paper on

HEREDITARY INFLUENCE; ITS RELATION TO MENTAL DISEASE, in which he gave in a very interesting way some facts on maternal and paternal impressions, as well as cases of atavism and inherited peculiarities.

Dr. John Morris agreed with much the author said, and said the paper would do much good.

Dr. I. E. Atkinson thought we should be careful how we

accepted these facts. The tendency to inheriting peculiarities is very limited, and he referred to the statistics on circumcision.

Dr. Wm. H. Welch:—Weissman cut off the tails of 800 white mice in succession and had not succeeded in making a single exception to mice born with tails. His book devoted to the consideration of acquired peculiarities has just been translated into English. All inherited peculiarities lie in the germ plasma and all the variations can be explained by changes in the sexual cells, and our sexual cells can not be altered by acquired habits. He thinks the weight of evidence is opposed to the inheritance of acquired habits.

The paper was further discussed by Drs. Jos. T. Smith, John Morris, L. McL. Tiffany, J. C. Harris, J. C. Thomas, L. E. Neale, R. T. Wilson, G. H. Rohé and R. H. Goldsmith.

Dr. H. M. Thomas then read a paper on "Syphilis as a Cause of Nervous Disease."

Dr. B. D. Evans read a paper entitled "A Case of Periodical Insanity, with the Menstrual Function the Exciting Cause of Outbreaks."

This was discussed by Drs. R. Gundry, J. C. Harris, P. C. Williams, H. B. Jacobs, G. H. Rohé and L. McL. Tiffany.

Dr. William H. Welch then delivered a few remarks on

THE DIAGNOSIS OF ASIATIC CHOLERA.

The diagnosis of Asiatic cholera is of great interest and the undertaking is one of much importance. The importance of the diagnosis varies at the time of the epidemic. It is important to make the diagnosis of the first case or of the first few cases. The recognition of this is essential for preventing the epidemic. Then even after the epidemic has broken out it is desirable to make the diagnosis early, because the treatment should begin as early as possible, because it is then more effective. Nevertheless it is not a bad mistake if cases of diarrhoea are called Asiatic cholera, for other diseases are often called cholera.

The means at our disposal independent of the existence of an epidemic are the symptoms and post-mortem appearances. The diagnosis after death is an important pathological aid of the disease. Experience during the last epidemic of cholera at Hamburg and elsewhere is conclusive that there is no diagnostic symptom or pathological lesion of cholera; there is only one thing, and that is the determination of the organism, the comma bacillus of Koch, in the discharges. When we consider the different classes of cholera it is almost impossible to classify them. We have on record pathological studies of hundreds of cases, and we find that in eight to ten in every 100 the cholera bacillus has been found in the stools of healthy persons who have had to do with those sick, those with no symptoms of the disease and with no diarrhoea, but who are with the sick and in the hospitals. So far it has only been found in healthy persons who are near the sick. Then there are those cases of the Asiatic sort with diarrhoea and in no way differing from ordinary diarrhoea, but it is simply cholera without vomiting, in which the cholera bacilli are present in the stools. These are not diagnostic without the bacilli. Then there are those cases of cholera, that is cases that present more or less the symptoms of cholera, but do not pass into the asphyctic or algid condition of the disease with diarrhoea, rice water discharge, vomiting, cramps, complete suppression of urine, absence of the radial pulse and aphonia. This is cholera. Of these cases there should be a very strong suspicion. The term rice water stools is applicable only to a minority of the cases. According to the reports from Hamburg we must not expect to have typical rice water stools; they are more often absent than present. They have a color, and frequently contain some bile and are green or yellow. In the asphyctic stage the disease is more characteristic; there is complete

suppression of urine and the urine secreted in the algic stage is called the last urine, and no more can be obtained with a catheter, and there is no more urine until the stage passes away.

The prognosis depends upon this stage. If it lasts seventy-two hours it is said to be hopeless. The character of the first urine passed after this stage is awaited with great interest. It always contains albumen and casts, and the prognosis is always more favorable the larger the number of casts, for they must be washed out. The absence of the radial pulse is another symptom of importance. There is no correspondence between the strength of the heart beat and the absence of the pulse, indicating that this absence of the radial pulse is in part caused by the spasmodic contraction of the blood vessel. The heart is often quite strong.

There is loss of voice or hoarseness; extreme coldness of the extremities with the internal temperature normal or a little above. There is often 6° to 8° difference between the temperature in the axilla and that in the vagina or rectum. There is sinking in of the face, and the eyes take on that peculiar color which is described in the old books. Exactly these same symptoms may occur in cholera nostras, but an absolute diagnosis can not be made from these alone. The disease may go into a typhoid state and end there. The fulminating variety is where the symptoms come on with great rapidity. The impressions from the cases at Hamburg are that death was due to intoxication and not so much from a draining away of the body fluids.

There is nothing in these symptoms taken by themselves or together to constitute a diagnostic landmark, nor in the post-mortem appearances that are decisive. All the usual post-mortem appearances are found in these cases, and the results are not pathognomonic. We can not make a diagnosis of Asiatic cholera from the post-mortem appearances. Koch's comma bacillus is the only true diagnostic point, just as the tubercle bacillus is in tuberculosis. It is a difficult work—more so than the recognition of the tubercle bacillus, and it is doubtful if the general practitioner, even if he should have the knowledge, would have the time to go through the methods necessary to make the diagnosis. We first make cover slip preparations from the rice water stools, taking up the large rice lumps, and if they contain a large number we may be sure, but if only few are present it is not safe to make a diagnosis in this way. There are probably one or two in every city capable of making a diagnosis from the stools, and who are able to study the organism when suspected. More frequently cultures are made, and that requires twenty-four to forty-eight hours to make the diagnosis, but sometimes it can be made immediately, and then it is positive. The cases where these methods have failed are very, very few, and those of failure are regarded as curiosities. He should be prepared to make examinations for any physician at the Johns Hopkins Pathological Laboratory, and if any one should have a suspicious case they may send a specimen of the stools in a wide-mouthed bottle tightly sealed with paraffin or sealing wax, and this may be sent by mail with safety and will last a long time.

The first case at Hamburg occurred on August 14, 1892, died on the 15th, and through some delay the examinations were not made in time and the disease was not officially declared to be present until the 22d, and by this unfortunate circumstance eighty cases had broken out when the disease was officially announced. This by no means illustrates what can be done.

These remarks were discussed, with personal reminiscences of the disease, by Drs. P. C. Williams, J. C. Hemmeter, E. M. Schaeffer and D. W. Cathell.

Dr. Herbert Harlan then read a paper on "Suppurative Inflammation of the Temporal Bone," which was discussed by Drs. Harry Friedenwald and J. R. Winslow.

Dr. H. Friedenwald then read a paper entitled "The Causation of Inflammation, a Review," which was discussed by Dr. Aaron Friedenwald.

Dr. John R. Winslow read a paper on "Tuberculosis of the Pharynx," which was discussed by Dr. Wm. B. Canfield.

Dr. Frank M. Chisolm read a paper on "Acute Glaucoma following the Extraction of Cataract."

Dr. Robert L. Randolph read a paper on "A Clinical Study of Thirty-five Cases of Epidemic Cerebro-spinal Meningitis, with especial Reference to the Eye Symptoms," which was discussed by Drs. E. J. Bernstein and A. Friedenwald.

Dr. E. J. Bernstein read a paper on "Hypertrophic Rhinitis as an Etiological Factor in Asthenopia."

Dr. Wm. T. Cathell read "A Study of Two Cases of Paroxysmal Sneezing, with Treatment."

Dr. George H. Rohé was elected president for 1893-4.

Thirty-four new members were elected. Adjourned.

WEIL'S DISEASE.—Fiedler (*Deutsches Archiv für klinische Medizin*, Vol. L. 1892), basing his opinion upon thirty-one cases of the above disease observed by himself, and upon a study of the literature of the subject, comes to the following conclusions:

1. Weil's disease is an acute infectious disease.
2. It is probably (etiologically, symptomatically, and anatomically), identical with the bilious typhoid fever first described by Griesinger in 1852, and later by Kartulis and Diamantopulos, disease which has no relation to relapsing fever.
3. It does not behave as a mere collection of symptoms, but as a well-characterized, specific disease. It is sharply differentiated from typhoid fever, septicemia and catarrhal jaundice. It is a disease *sui generis*.
4. The disease-producing agent, chemical substance or microorganism, is yet unknown. It is to be searched for in putrifying organic substances (Laveran's organism).
5. The disease affects especially males of middle adult life. It is very rare in females and children. It is most frequent in the hot months.
6. It begins quickly, without prodromes, mostly with chill and high fever, headache, congestion of the brain, severe general and gastric symptoms, with much thirst. Very quickly, mostly on the second day, severe muscular pains begin, most common in the calf, which last a long time, often for weeks.
7. On the third to the seventh day jaundice appears, with swelling and tenderness of the liver.
8. The fever has a typical course, lasting usually eight to twelve days, and ending by lysis. In about two-thirds of the cases a second rise of temperature occurs five to eight days after the fever first disappeared. This attack is usually less severe than the first.
9. The pulse in the beginning is frequent; in the height of the jaundice sub-normal, seldom intermittent, frequently dicrotic.
10. Nephritis (albuminuria) is almost constantly observed; the amount of urine in the beginning is decreased, and contains bile coloring matter for a long while.
11. The spleen is usually increased in size, especially in the beginning of the disease, and the splenic tumor can sometimes be palpated.
12. Herpes and erythema usually appear.
13. Epitaxis is very frequently observed, and sometimes hemorrhages from other mucous membranes. In severe cases there may be subcutaneous and sub-mucous hemorrhages.
14. Catarrh of the air passages is seldom observed. Pneumonia and pleurisy occurred but once in his series.
15. The disease usually terminates in recovery in the German districts. The convalescence is protracted.—*University Medical Magazine*.

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SATURDAY, MAY 13, 1893.

CONCERNING HEREDITY AND TUBERCULOSIS.

PROF. GARTNER of Jena, has recently published an interesting as well as extensive study into the question of the heredity of tuberculosis (*Zeitschrift für Hygiene und Infektionskrankheiten*, B. 11, 1893). This study is based upon clinical observations and upon statistical and experimental investigations, and his conclusions certainly throw some new light upon the various obscure problems concerned in the etiology of tuberculosis.

From the study of a vast amount of statistical material the following deductions were warranted: 1. The death rate from tuberculosis is greatest during the first years of life, after which it falls to rise again at the time of puberty. 2. The curve of the mortality rate of tuberculosis corresponds quite accurately to that of the general death rate as shown by the Prussian statistics. 3. The tuberculosis death rate tallies with that of the diseases of the organs of the body, and is quite unlike the death rate of the acute infectious diseases, with the exception of the pulmonary and the pleural inflammations. From these general deductions it can still further be concluded: *a.* The mortality of tuberculosis depends to a certain degree on age predisposition; this disease puts children and old people to death easier than the youth and the young adult; variations in the general resistance must be regarded as present to explain these phenomena. *b.* The alarming death rate of the first year of life, which is not reached by any other period, indicates that in addition to the general liability to the disease on account of the age itself there must exist at this early time a source of infection of great intensity. *c.* From statistics it was impossible to learn whether the source of this infection was extra- or intra-uterine; great possibility for post-partum infection to occur must be granted on account of the intimate relations between the newborn and the mother, as well as other members of

the family. Whatever the source of infection during this early time may be, there is certainly abundant ground to believe that tuberculosis later on in life may depend on early infection.

The infrequency of congenital tuberculosis has been held by some to depend upon the fact that the bacillus, transferred from parents to child, is held in abeyance for a time by the growing cells, to become actively pathogenic when the nutritive and vital energies of the cellular elements are somewhat exhausted; but GARTNER does not believe that capacity to proliferate and to grow necessarily implies great power of resistance, while on the other hand, a granted, low vital resistance of the young cells does not necessarily mean that hereditary tuberculosis must be present at birth, for the following reasons: Germinative infection probably does not occur; the bacilli nearly invariably gain entrance through the placenta, and the liability to infection depends to some extent upon the amount of blood in its sinuses; consequently the principal danger must come in the last third of pregnancy, and the passage of bacilli from mother to child is certainly favored at the time of birth—hence the lesions of the disease may not be visible and recognizable at the time of birth, and yet the germs may be present in the body of the newborn and cause active lesions at some future time. Although the frequency of pulmonary tuberculosis must be regarded as speaking against foetal infection, because in the foetus the blood avoids the lungs, yet the structure and the position of the lungs must favor bacillary localization, and GARTNER consequently thinks that a certain proportion of the cases of early primary lung tuberculosis might depend on a congenital infection. The primary liver, spleen, bone and joint tuberculosis must almost perforce be considered as of foetal origin, because it is difficult to understand how the bacilli can pass the lymphatic filter behind the digestive and the respiratory organs without a trace of lymphatic gland tuberculosis and then locate and develop in the much less predisposed osseous and articular structures. Foetal tuberculosis can consequently not be positively excluded, and a certain number of the primary tuberculosis in the bones, the joints and the solid organs must be looked upon as inherited.

The above embodies the conclusions to which GARTNER came from a general study of the statistics and of the pathology of tuberculosis. He then studied the problem experimentally in the following manner: Tubercle bacilli were injected in the abdominal cavity of female animals in order to infect the ovum or to cause a placental infection, and he succeeded in showing that in abdominal tuberculosis bacilli may find entrance into the foetus. Injection of bacilli into the circulation of pregnant animals produced tuberculosis in 10 per cent. of the embryos. It was

also found that in mice with pulmonary tuberculosis with or without secondary generalization, foetal infection often occurred; this was also the case in birds.

In male animals tubercle bacilli were injected into the lungs, and bacilli were subsequently found in the semen five times in thirty-two examinations. Considering the large number of spermatozoa—millions in one ejaculation—and the relatively much smaller number of bacilli, the chances for coincident fructification and infection must after all be extremely slight, almost at a minimum. In a series of experiments it was found that in spite of abundant bacilli in the sperm of animals with testis tuberculosis, no foetal infection occurred; on the other hand, bacillary semen may undoubtedly cause genital tuberculosis in the female; of sixty-five female guinea pigs cohabiting with males whose testicles were rendered tuberculous, five died from tuberculosis, the disease starting from the vagina.

The results of GARTNER's extensive and thorough investigations may be summarized as follows: In mice, canary birds and rabbits it was shown experimentally that tubercle bacilli quite often pass from mother to foetus. Statistics show that in man the first years of life present the highest death rate from tuberculosis, and the disease pursuing a relatively chronic course, the infection taking place most likely in the last part of the embryonal period, can not consequently be expected to present characteristic lesions at birth—therefore it appears that in man as well as in animals bacilli often pass from mother to offspring. Experiments on rabbits and guinea pigs failed to demonstrate direct transmission of bacilli from father to embryo, but quite often infection of the mother. With reference to man it may be said that the numerical relation between the spermatozoa and the bacilli, taken in conjunction with the great infrequency of primary female genital tuberculosis, would indicate that tuberculosis is not transmitted directly from the father to the embryo.

GARTNER's experimental evidence taken in conjunction with his statistical conclusions, certainly seem to show that the much disputed influence of heredity in the causation of tuberculosis may after all depend upon something much more tangible than the alleged transmission of the vague predisposition, namely the transmission from mother to foetus of the essential cause of the disease. His study and research adds much to our knowledge concerning the direct transmission of pathogenic microbes from mother to foetus and with especial reference to tuberculosis, a disease in the causation of which heredity has always been thought to play an important part.

MEDICAL TEMPERANCE ASSOCIATION.

This society, organized at the Washington meeting of the American Medical Association, has manifested a vigor and strength that promises to have a very large influence in the future. Founded on the same essential platform as the English Society which has been in existence seventeen years, it aims to rouse up and foster scientific study of the alcoholic question.

The English society numbers several hundred members, who yearly contribute many papers and studies of statistics concerning alcohol and its value as a medicine, and other branches of the same topic. DR. B. W. RICHARDSON is president, and a monthly journal is issued as an organ of this society, the members of which now include some of the most distinguished medical men of Great Britain. Several branches are in active operation holding meetings monthly and quarterly, and sending delegates to the annual meeting, which convenes at the same time and place as the British Medical Association. The American society is presided over by DR. N. S. DAVIS, and has already over a hundred members. The annual meeting will be at Milwaukee, June 8, (as the members all belong to the American Medical Association) and will no doubt, attract much attention. In this country, where temperance and the alcoholic question occupies so large a part of sociological and political topics of the hour, it seems eminently proper for physicians to study and teach the public on this matter. Of all others, medical men are the most competent and have the best facilities for sound counsel in this field. Yet, to-day, almost the entire literature, together with the leaders and teachers of the uses and abuses from alcohol, are a confused medley of statements by the most incompetent persons. It seems startling that the alcoholic question should receive so little attention from physicians, when it is literally a scientific subject which can only be known and understood by the methods of science. This society has begun on this basis. Two prizes of a hundred dollars each are to be awarded to the best essays, "On Alcohol as a Medicine," also on "The Physiological Action of Alcohol on the Body," at the coming meeting. A committee on statistics of the mortality from alcohol, will report on the year's work. Several papers will be read on medical phases of this subject at the coming meeting. This society ignores all political or moral discussions of temperance, and seeks to study the subject from the scientific side. Every medical man in the country should be interested in this work, for notwithstanding all that has been written, the subject is practically unknown; and will be until it is studied generally by physicians.

We take pleasure in calling attention to this society and its work, and believe that as long as they

confine their studies exclusively to the scientific side of the alcoholic question, they will fill a very important place in the progress of medicine. The English Society on the same basis, has been very influential in pointing out facts and conclusions concerning alcohol and its influence not known before; and we have no doubt this society will be equally influential and attain high rank in the years to come. All persons who are interested should write the secretary, DR. CROTHERS, of Hartford, Conn., for transactions of last meeting and programs of the coming session.

THE INTERNATIONAL MEDICAL CONGRESS.

A telegram in the daily press of May 7 says the International Medical Congress to be held in Rome, September 24, has been postponed on account of the cholera. We sincerely hope this is a canard, and that there is no necessity for such action, but if it has been taken, we can say to our European confrères that they may find it to their professional and personal interest to visit the American Medical Association, which will meet in Milwaukee, June 6-10, and at the same time view the wonders in the World's Fair; or, if more convenient, visit the Pan-American Medical Congress in Washington, September 5-8, which will be one of the most notable events in the medical history of America. The World's Fair will still be open to visitors.

While we regret exceedingly that there should be any occasion for the postponement of the Congress at Rome, and that such a contingency has arisen, we extend to the physicians and surgeons of Europe an invitation to visit our American shores, assuring them of a cordial welcome and a hearty reception. This year America is the world's host.

THE CONFERENCE OF STATE EXAMINING AND LICENSING BOARDS.

The third annual meeting of the Conference of State Medical Examining and Licensing Boards, heretofore announced in this journal, will be held at the Pfister Hotel, Milwaukee, June 7, 1893.

There is no one organization in the country that can effect as much for the advancement of the profession as this.

The number of these official bodies is increasing each year in keeping with the general progress of the profession. The mere fact of their existence is an additional stimulus and incentive to higher requirements on the part of the teaching bodies. It is in the highest degree desirable that this meeting should be attended by all of the members of the various licensing boards in the United States and Canada. And especially is it important that recently created boards should avail themselves of this opportunity to

profit by the experience of those who have had long training in the difficult work of conducting examinations. It is expected that representatives of the Army, Navy and Marine Hospital Boards will be in attendance and lay before the conference the systems which they pursue and the principles by which they are guided in formulating and conducting their examinations. This feature of the meeting alone will constitute an object lesson of incalculable value.

Any members of the profession, however, who are interested in elevating the tone and raising the standard of medical education will be welcomed, we have no doubt. It is only by such mutual interchange of thought and experience that concert of action can be secured which is so eminently desirable to harmonize the procedures of the different boards, and so far as practicable, indeed, the laws of the different States on the subject. One important feature of the conference will be a report from each board of its work during the past year. Among the subjects on which papers will be read as already noted in *THE JOURNAL*, are the influence of examining boards in elevating the moral and intellectual tone of the profession, their composition and mode of appointment, their reciprocal relations, methods of conducting examinations and others of equal practical value.

PRELIMINARY PROGRAMS.

These forerunners of the ensuing meeting of the American Medical Association, indicate a degree of activity and interest in the scientific work of that body that has never been equaled. More than four hundred titles of papers are already in the hands of the Section officers. The arrangement and discussion of this immense mass of material will call for an exercise of first class ability on the part of the presiding officers.

In view of the immensity of the work in the hands of each of the Sections, it seems to be very desirable that the hours of the Section meetings after the first day shall begin at 9 A.M., and 1:30 P.M. The general sessions being held at 4:30 P.M., after the first day, as provided in the new Constitution.

Unless this or a similar arrangement is made, it will be impossible to do justice to those who have spent hours, days and weeks in preparing for this occasion.

Papers read by title only will not be published as a part of the transactions of the meeting, but abstracts giving a full synopsis may be read and discussed, after which the full paper may be published as part of the annual transactions.

All papers read in the Sections belong to the Association exclusively for publication in the journal of the Association. Their prior appearance elsewhere is regarded as bad ethics and a sufficient

cause for the exclusion of all such papers from THE JOURNAL as part of the annual transactions of the Association.

It is not the intention or purpose of the Association to in any way exclude or prevent reporters of other publications from making as full and complete notes of all the proceedings of the Association as they may desire, but we suggest to authors and journalists that they bear in mind the above statement.

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The hall for the general sessions and halls for the Section meetings are conveniently located, near to each other and on quiet streets. In preparing for the meeting, which will be very large, perhaps much the largest in the history of the Association, the Committee has made ample provision for the entertainment of all who may pull their latch strings or press their buttons.

RAILROAD RATES.—In purchasing tickets to Milwaukee, obtain a certificate from the ticket agent, in order that you may have the benefit of reduced price for return. The round trip is a rate and a third.

THE Illinois State Board of Health has been reorganized and the following members appointed by the Governor: George Thilo of Cook county, to succeed F. W. Reilly, term expired; William Quine of Cook county, to succeed Daniel H. Williams, removed; Sarah Hackett Stevenson of Cook county, to succeed William R. McKenzie, resigned; James B. Patrick of Cook county, to succeed William A. Haskell, resigned; Julius Kohl of St. Clair county, to succeed A. L. Clark, resigned.

IOWA MEDICAL BOARD UPHOLD.—*State Supreme Court Passes on the Mooted Question of Its Authority.*—Des Moines, Ia., May 9.—[Special].—The Supreme Court this morning handed down its decision in the long-contested case of the Iowa Eclectic Medical College against the Iowa State Board of Medical Examiners. It was an action in mandamus to compel the board to recognize the college and grant certificates to graduates thereof, the board having refused on the ground that the college did not come up to the requirements and standard fixed by the board in its teaching and appliances. The action was based on the claim that the law giving the board such power is unconstitutional, because there is no appeal from its decisions. The court decides that the law is constitutional, and voted that the board has the power to fix the standard of medical colleges, and there is nothing in the statute requiring that any particular school of medicine shall be represented on the board. Judge Given wrote the opinion. This is in accord with the decision of the Supreme Court of Oregon on this question.

ASSOCIATION NEWS.

PRELIMINARY PROGRAM OF THE SECTION ON DISEASES OF CHILDREN.

OFFICERS—C. G. Jennings, Chairman, Detroit, Mich.; F. S. Parsons, Secretary, Northampton, Mass.

EXECUTIVE COMMITTEE—Wm. Perry Watson, Jer-

sey City; W. S. Christopher, Chicago; E. F. Brush, Mt. Vernon, N. Y.

The officers of the Section take pleasure in announcing that the services of an expert stenographer have been engaged, and that especial attention will be given to the publication of full and accurate reports of all discussions.

TUESDAY, JUNE 6—AFTERNOON SESSION.

1. Address of the Chairman—Some Recent Advances in Pediatrics, by C. G. Jennings, Detroit, Mich.
2. Observations on Isolated Cases of Diphtheria, by W. A. Dixon, Ripley, Ohio.
3. Some Observations in Treating Cases of Diphtheria, by G. Benson Dunmire, Philadelphia, Pa.
4. Presentation of Aseptic Intubation Instruments, with Statistics of Intubation, by F. E. Waxham, Chicago, Ill.
5. The Therapeutics of Diphtheria, by F. E. Waxham, Chicago, Ill.
6. Observations Relating to Diphtheria, by J. Lewis Smith, New York City, N. Y.
- Discussion of Diphtheria opened by C. W. Earle, Chicago, Ill.; V. C. Vaughan, Ann Arbor, Mich.; Joseph Eichberg, Cincinnati, Ohio; J. A. Larrabee, Louisville, Ky.; E. Fletcher Ingals, Chicago, Ill.; Wm. P. Munn, Denver, Col.

WEDNESDAY, JUNE 7—MORNING SESSION.

7. The Pathogenesis of Bronchitis, by W. S. Christopher, Chicago, Ill.
8. The Pathology and Symptomatology of Acute Bronchitis and Broncho-Pneumonia, by C. L. Dodge, Kingston, N. Y.
9. Some Phases of Broncho-Pneumonia in Children, by J. M. G. Carter, Waukegan, Ill.
10. The Pathology and Symptomatology of Croupous Pneumonia, by F. S. Churchill, Chicago, Ill.
11. The Therapeutics of Bronchitis, by I. N. Love, St. Louis, Mo.
12. The Therapeutics of Broncho-Pneumonia, by F. S. Parsons, Northampton, Mass.
13. The Therapeutics of Croupous Pneumonia, by J. A. Larrabee, Louisville, Ky.
- Discussion opened by F. Forchheimer, Cincinnati, Ohio; Heneage Gibbes, Ann Arbor, Mich.; B. A. Waddington, Salem, N. J.; Edward W. Wells, Chicago, Ill.; Jas. B. Herrick, Chicago, Ill.; Marion Thrasher, San Francisco, Cal.; Wm. Perry Watson, Jersey City, N. J.

WEDNESDAY, JUNE 7—AFTERNOON SESSION.

14. Some of the Sequelæ of Pertussis, by B. A. Waddington, Salem, N. J.
15. The Treatment of Chorea by Large Doses of Quinine, by W. A. N. Dorland, Philadelphia, Pa.
16. Insane Disorders of Children; their Extra-Asylum Treatment, by J. Madison Taylor, Philadelphia, Pa.
- Discussion opened by C. B. Burr, Pontiac, Mich.; F. W. Mann, Detroit, Mich.
17. Acute Endocarditis of Children; Etiology, Symptomatology and Treatment, by C. N. Highley, Conshohocken, Pa.
18. Chronic Endocarditis in Children; Pathology, Valvular Lesions, Symptomatology and Treatment, by M. P. Hatfield, Chicago, Ill.
19. Pericarditis in Children; Etiology, Pathology, Symptoms and Treatment, by Wm. Perry Watson, Jersey City, N. J.
- Discussion opened by I. N. Love, St. Louis, Mo.; J. M. Keating, Colorado Springs, Col.; J. Lewis Smith, New York City, N. Y.; B. A. Waddington, Salem, N. J.; and J. A. Larrabee, Louisville, Ky.

THURSDAY, JUNE 8—MORNING SESSION.

20. Phenomena and Causes of Gastro-Enteric Fever (not Typhoid), by J. Wellington Byers, Charlotte, N. C.
21. The Importance of Early Effective Elimination in the Zymotic Diseases of Children, by J. A. Work, Elkhart, Ind.
- Discussion opened by V. C. Vaughan, Ann Arbor, Mich.
22. Dentition and Some of its Diseases, by Marion Thrasher, San Francisco, Cal.
23. Artificial Feeding of Infants, by Geo. C. Mosher, Kansas City, Mo.
24. Cholera Infantum, its Treatment in Malarial Localities, by L. Scheneck, Mt. Carmel, Ill.
25. Milk Infection, by V. C. Vaughan, Ann Arbor, Mich.
- Discussion opened by W. S. Christopher, Chicago, Ill.; E.

F. Brush, Mt. Vernon, N. Y.; M. P. Hatfield, Chicago, Ill.; W. A. Dixon, Ripley, Ohio.

THURSDAY, JUNE 8—AFTERNOON SESSION.

26. A Case of Laryngeal Stenosis Complicating Scarlatina, with Remarks on Treatment, by J. A. Wessinger, Ann Arbor, Mich.

27. Primary Syphilis and Gonorrhoea in Children, by B. M. Ricketts, Cincinnati, Ohio.

28. Atresia Oris, by Edward Borek, St. Louis, Mo.

29. Etiology, Morbid Anatomy and Treatment of Infantile Hernia in the Male, by Thomas H. Manley, New York City, N. Y.

30. Hernia in Children, by W. E. Wirt, Cleveland, Ohio.

Discussion of Hernia to be opened by C. B. Nancrede, Ann Arbor, Mich.; De Forest Willard, Philadelphia, Pa.; F. W. Robbins, Detroit, Mich.

PRELIMINARY PROGRAM OF SECTION ON ANATOMY AND SURGERY.

Nephrectomy, by J. H. Carsten, Detroit, Mich. Shall it be Nephrectomy or Nephrotomy? by Joseph Price, Philadelphia, Pa.

Gastroliths, by W. B. Outten, St. Louis, Mo.

H. O. Walker, Detroit, Mich. Title not given.

Appendicitis, by Joseph Hoffman, Philadelphia, Pa. Discussion opened by E. E. Montgomery, Philadelphia, Pa.

A Plea for Early Operative Interference in Appendicitis, by W. Easterly Ashton, Philadelphia, Pa.

Joseph Pancost, Philadelphia, Pa. Title not given.

Unnecessary Restrictions in Surgery, by John B. Roberts, Philadelphia, Pa.

Amputations below the Knee and Artificial Limbs for Same, by Mordecai Price, Philadelphia, Pa.

A New Operation for Varicose Veins. (Second day.) By Ernest LaPlace, Philadelphia, Pa.

Diagnosis and Treatment of Chronic Intestinal Obstruction. (First day if possible.) By John Deaver, Philadelphia, Pa.

Treatment of Compound Fractures, Paul Vesterling, St. Louis, Mo.

Present Status of Thoracic Surgery, by McFadden Gaston, Atlanta, Ga. Discussion opened by E. L. Shurley.

Artificial Opening of Pulmonary Cavities—Insertion of Rubber Tube and Injection of Chlorine Gas, by E. L. Shurley, Detroit, Mich.

Suprapubic Cystotomy in Two Stages—its Indications and Technique, by N. Senn, Chicago, Ill.

Operation for Stricture of Ureter in Hydro or Pyonephrosis, by Christian Fuger, Chicago, Ill.

Surgery of the Ureters, by Weller Van Hook, Chicago, Ill.

Ureterectomy, by Howard A. Kelly, Baltimore, Md.

W. H. Watten, Louisville, Ky. Title not given.

The New Treatment of Hernia, by Alexander Dallas, New York.

C. A. L. Reed, Cincinnati, Ohio. Title not given.

Dessasure Ford, Augusta, Me. Title not given.

Ample Incision, by Geo. Ben Johnson, Richmond, Va.

W. C. Dugan, Louisville, Ky. Title not given.

H. O. Marcy, Boston, Mass. Title not given.

A Rational Treatment of Prostatic Obstruction in old Men, by Geo. W. Broome, St. Louis, Mo.

A New Applicator for Introducing Medicaments into Urethra, Uterus and Rectum, by A. B. Kirkpatrick, Philadelphia, Pa.

Intestinal Anastomosis by Mechanical Means and Without Suture with Demonstration. (Third paper in forenoon of second day if possible.) By J. B. Murphy, Chicago, Ill.

Intestinal Anastomosis by an Improved Method without Plates and with but two knots, either of Silk or Catgut can be used. (With exhibition of specimens.) By M. E. Connell, Wauwatosa, Wis. Discussed by J. B. Murphy.

Specimens demonstrating the Operation of Gastro-Cholotomy, end to end Anastomosis of Gut and the connecting of the Gall Bladder with the Alimentary Tract, as Performed with the Murphy Button and by the Mansell Operation, by Merrill Ricketts, Cincinnati, Ohio.

Pathogenic Bacteria. (Illustrated.) By Sternberg.

Remarks on Stricture of Urethra of Large Caliber with Illustration Cases, by Frank Lydston, Chicago, Ill.

Strictures of the Rectum, by Joseph B. Bacon. Discussion opened by J. B. Murphy and Jas. M. Matthews.

Chronic Prostatic Suppuration, by W. T. Belfield, Chicago, Ill. Discussion opened by Hunter McGuire.

A Few Notes on Tibio-Tarsal, Tarsal, Medio-Tarsal, Tarso-

Metatarsal, Phalangeal, Traumatic and Artificial Amputations in the Lower Extremities, Substitutes for Parts lost in this Situation, by Thomas H. Manley, New York.

A Case of Chronic Glanders, with Recovery, by Bayard Holmes, Chicago, Ill.

A Case of Aneurism of Common Femoral Artery; Ligature of External Iliac, Remarks, by Donald MacLean, Detroit, Mich.

Hydatids of Kidneys, with report of a Case, by John B. Hamilton, Chicago, Ill.

Two Cases of Traumatic Rupture of the Small Intestine, Early Operation and Recovery, by H. C. Dalton, St. Louis, Mo.

Report of Cases in Evidence of Surgical Impunity of Peritoneal Viscera, by John E. Link, Terre Haute, Ind.

Is Removal of Sigmoid Flexure Warranted in Malignant Disease of Same? by Jas. M. Matthews, Louisville, Ky.

Brain Surgery, by F. C. Schafer, Chicago, Ill.

A Study of Some Cases of Intracranial Surgery, by E. Lanphear, Kansas City, Mo.

PROGRAM OF THE SECTION OF LARYNGOLOGY AND OTOTOLOGY.

TUESDAY—AFTERNOON SESSION.

1. President's Address, by E. L. Shurly, Detroit, Mich.

2. Rhinitis Atrophica Foetida (Ozena Germina), by O. M. Waterman, Milwaukee, Wis.

3. Treatment and Study of Nasal Catarrh, by D. S. Campbell, Detroit, Mich.

Discussion opened by A. B. Thrasher.

4. Lupus of the Nose, by John O. Roe, Rochester.

Discussion opened by Holbrook Curtis.

5. On Cases of Empyema of the Ethmoid Cells and Sphenoid Sinuses, causing displacement of the Eyeball; their Operation from the Orbit, by Herman Knapp, New York.

Discussion opened by C. H. Burnett, Philadelphia, Pa.

6. Nasal Stenosis treated by Operative Measures on the Cartilages of the Ake, by A. B. Farnham, Milwaukee, Wis.

7. Operations on the Nasal Septum, by Holbrook Curtis.

Discussion opened by Fletcher Ingals.

Business.

WEDNESDAY—MORNING SESSION.

8. A New Treatment of Chronic Suppurative Otitis Media, by H. C. Heath, Indianapolis, Ind.

Discussion opened by C. W. Richardson.

9. A Case of Carious Destruction of the entire Pyramid of the Temporal Bone, by C. Rark, St. Louis, Mo.

10. Twenty additional Cases of Mastoid Trephining, by Alexander Randall, Philadelphia, Pa.

11. The Radical Operation according to Schwartze, of Caries involving the Middle Ear, with Report of Cases, by C. R. Holmes, Cincinnati, O.

Discussion opened by Herman Knapp.

12. The Treatment of Tinnitus in Aural Sclerosis, by Ralph W. Seiss, Philadelphia, Pa.

Discussion opened by Samuel Sexton.

WEDNESDAY—AFTERNOON SESSION.

13. The Class of Cases in which Excision of the Membrana Tympani and Excision of the Ossicles may be expected to give good Results, by Geo. Wilkinson, Omaha, Neb.

14. The Cases in which we may expect good Results from Excision of Drum and Ossicles, by S. McCuen Smith, Philadelphia, Pa.

15. Partial Myringectomy and Removal of the Incus and Stapes for the Relief of the Lesions caused by Chronic Catarrh of the Middle Ear, by C. H. Burnett, Philadelphia, Pa.

Discussion opened by Lucien Howe.

16. Chronic Naso-Pharyngeal Inflammations an Etiological Factor in the Disorders of Digestion and Excretion, by P. C. Jensen, Manistee, Mich.

17. Asthma due to Intra-Nasal Disease, by F. S. Crossfield, Hartford, Conn.

Discussion opened by Price Brown.

THURSDAY—MORNING SESSION.

18. Adenoid Vegetations of the Pharyngeal Vault—Methods of Operating, by A. B. Thrasher, Cincinnati, O.

19. When should we Operate on the Pharyngeal, Fauical and Lingual Tonsils, by S. G. Dabney, Louisville, Ky.

20. Some Remarks on the Operative Methods in the Treat-

ment of Adenoid Growths, by C. W. Richardson, Washington, D. C.

Discussion opened by W. E. Casselberry.

21. Indirect Treatment of Laryngeal Disease, by Ephraim Cutter.

Discussion opened by S. G. Dabney, Louisville, Ky.

22. Case in which an Orange Seed Sprouted in the Larynx, by Geo. F. Keifer, Lafayette, Ind.

23. Three Cases of Laryngeal Neoplasms, by Robert Levy, Denver, Col.

24. Laryngeal Tumors; their Removal and Treatment, by Chas. S. Allen, New York City.

Discussion opened by John O. Roe.

THURSDAY—AFTERNOON SESSION.

25. Physiology and Pathology of the Eustachian Tube, by John North, Toledo.

26. Iodine Applied in Hypertrophy of the Walls of the Eustachian Orifices, by A. J. Erwin, Mansfield.

Discussion opened by Dr. Reese, Toronto.

27. Intubation and Tracheotomy in Diphtheritic Croup, with Report of Cases, by W. Johnson, Paterson, N. J.

Discussion opened by Bryson Delavan.

28. Clinical Experience with Pyrozone, by J. E. Newcomb, New York City.

29. Notes of Two Years' Work in the Nose and Throat Clinic at the Michael Reese Hospital, Chicago, by Norval H. Pierce, Chicago.

30. Two Unusual Cases of Syphilis of the Upper Air Passages, C. H. Knight, New York City.

31. a. Description and Presentation of New Combination Ear Instruments. b. Description and Presentation of New Nasal Instruments, by Adolph Blitz, Indianapolis, Ind.

General Discussion.

Papers are conditionally promised by Drs. W. H. Daly, Don M. Campbell, D. B. Delavan, Lucien Howe and S. G. Miner.

DOMESTIC CORRESPONDENCE.

Why We Do Not All Think the Code Above Revision.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Dear Sir:—First. The present Code contains irrelevant matter; it may be excellent matter of its kind, admirable in its place, but its proper place is outside of the organic laws which govern a medical association. And, whether its status be that of by-laws or standing resolutions, the Code of Ethics is a portion of the organic law of our medical associations.

Specimens of the matter referred to are to be found in the account of the obligations of patients to their physicians or the attitude of mind that the physician should observe towards his profession. That the sentiments expressed are excellent; that the phraseology used is beautiful no more entitles such passages to a place in our organic law than the same qualities would render pertinent a beautiful and inspiring essay on the subject of ethics.

Second. Whether because of such irrelevant matter, or for other reasons, the Code as it stands, is not enforced; and the experience of nearly half a century goes uniformly to demonstrate that it can not be enforced. The writer has never known a case in which the penalties supposed to follow its violation were inflicted, although probably most members of the American Medical Association believe they know of instances of its violation. For instance, there is an article about collusion between the physician and apothecary. A few years since, some fellow members of our local society called my attention to what they claimed to be a gross violation of this provision, and of which they claimed to have conclusive knowledge. I offered for the vindication of the Code to appear as a prosecutor in the case against a gentleman with whom my relations had always been pleasant, if those who claimed to know of the violation would appear before the censors of the society, and before the society itself to

testify to what they knew, but the necessary testimony was never forthcoming.

Now, it is unlikely that in all the years that the Code has been a portion of our organic law, in all the myriad instances of its violation that have occurred there have been none of conviction and punishment, only that the proportion of these is so small as to be of insignificant importance and influence among the many cases of such alleged violation. The reasoning often resorted to that a law may do good though not always enforced, does not apply to this case. This is a case of a law never or almost never enforced. The claim made that the simple presence of the law on the statute book, quite apart from the matter of its enforcement, exerts a salutary influence, is, I think quite fallacious.

Some years since, I worked out a new form of ophthalmoscope and a very prominent manufacturer of optical apparatus called on me with a proposition to make this ophthalmoscope in large quantities and popularize it. In order to protect himself he proposed that he should take out a patent upon it, so that rivals should not get the advantage of his advertising of it, and he offered to pay me 10 per cent. of the gross receipts as my share. He explained how this had been done for others, and instanced a prominent member of the American Medical Association, whose instrument was fully described in this journal and exhibited, with a mark "patent applied for" upon it, before a section of the Association, and, so far as I know, no one ever suggested any censure or punishment of this gentleman for violation of the law in the American Medical Association. The exhibition of this patented instrument publicly demonstrated that the spirit of the Code could be violated with perfect impunity, that the Association as a body did not care to enforce it.

Third. The Code as it stands is a source of misunderstanding, both with the profession and with the general public. Partly from the inappropriateness of the language of 100 years ago to certain professional situations that exist to-day. More, perhaps by reason of false impressions as to what its provisions really are, arising in the minds of those who are inclined to read into it their own opinions and limitations. Certainly it is on this account subject to the undeserved hostility and contempt of many who hold just the principles it was designed to inculcate. The attitude towards it of the general public, and of more than two-thirds of the profession who have never been willing to subscribe to it, is certainly based on misapprehension, and, even among the members of the Association the widest diversity of interpretation may be found.

Take for instance, the most discussed provision, one that to many persons probably stands for the whole Code, that which declares against consultation with those "whose practice is based on an exclusive dogma to the rejection of the accumulated experience of the profession and of the aids actually furnished by anatomy, physiology, pathology, and organic chemistry." A large proportion of physicians, and the whole laity, seem to understand that this means that men holding different views as to the proper treatment of a case or the manner in which drugs act, are prohibited from meeting in consultation; an interpretation unjustified by any language of the Code, a clear reading into it of meaning it was not intended to convey, with the desire to find in it support for actions really arising from individual prejudice or caprice.

The argument will instantly be raised that the Code is not responsible for the mistakes of those who do not understand it. But there is the point: the Code is an expression of principles; in so far as it fails to express these principles clearly, it is a failure and has no reason to exist. It is a rule for guidance, and in so far as it fails to guide, or its guidance is in quite another direction from that intended it is a failure—a rule worse than useless.

Fourth. The existence of such a Code, misunderstood and rejected by the whole of the laity and a large proportion of the profession; unenforced by the societies that include it as part of their organic law, and which purports to have established finally and in the best possible manner the principles of professional ethics, tends to lessen respect for and obscure the understanding of those principles whose general appreciation is needed for the elevation and advancement of the profession. The absurdity of discussing questions of professional ethics that have been finally decided is so evident that practically no attempt at intelligent discussion of the foundations of professional ethics was made from the time of the adoption of the Code until the New York agitation for its amendment or repeal a few years ago.

The removal of these subjects from the sphere of professional discussion is largely responsible for the lack of a more general application of the principles of professional ethics. These principles, and the best methods for their application, are still properly matters for careful scientific study, not for dogmatism; and the Code, by apparently removing them from the sphere of scientific discussion has done positive harm.

The Code has never been so valuable for the advancement of the principles on which it is founded as it is now, when it becomes a subject for debate and revision.

Fifth. It is to-day the most serious obstacle to professional unity. On account of it, more than for any other reason, the majority of the profession remain outside the medical societies our Association represents. In the Association it is the cause of the widest divergence of opinion and the deepest and bitterest feeling. It is the cause of separation from the Association of the New York Medical Society, a body representing the largest proportion of the profession in the most populous State in the Union. Its existence has built up the medical sects, which to-day constitute the most serious obstacle to professional improvement, as those who have labored for the establishment of State Examination Boards know to their sorrow. The politically and socially powerful organizations known as Homœopathic and Eclectic Medical Societies would be utterly impossible except in the presence of the condensing and unifying influence of professional ostracism. The material of which such societies are usually composed is in the highest degree incoherent, and they could only be held together under this pressure.

These, Mr. Editor, are among the reasons that some of us see for revision of the Code. Some of the other aspects of the subject may be reserved for a second letter.

EDWARD JACKSON.

215 S. 17th St., Philadelphia, Pa.

NECROLOGY.

DR. MILTON JOSIAH ROBERTS, an eminent surgeon, editor and teacher of New York City, died on Wednesday the 26th ult., of pneumonia and renal disease. He was born in Ohio in 1850, educated at Cornell University, and graduated in medicine at the University of the City of New York, class of 1878. After serving a brief term as hospital interne, he took up his residence in New York, and as an assistant to Dr. Lewis A. Sayre took his life's bent in the direction of orthopædic surgery. He became a professor in that department at the Vermont University and the Post-Graduate School of New York. He was an early advocate of Listerian surgery, in the furtherance of which cause he was influenced to found a monthly publication, known as the *International Journal of Surgery and Antiseptics*. This journal was also the channel of presentation to the profession of not a few

of Dr. Roberts' devices and new instruments that his inventive faculty, which was shrewd and fertile, developed for use in osseous and articular surgery. He was visiting surgeon to the Randall's Island hospitals, where his services were of untold value to hundreds of deformed children. He was an active member in the State Medical and other social bodies, to all of which he freely contributed papers as occasion required.

DR. J. S. DORSEY CULLEN, who died in Richmond, Va., on March 23, in the sixty-second year of his age, was a member of the American Medical Association since 1877. He was the son of Dr. John Cullen of Dublin and Richmond, one of the founders of the medical department of the Hampden-Sidney College, now the Medical College of Virginia, and its professor of medicine. Dr. Dorsey Cullen graduated from this school in 1853, after which he spent two years or more in Philadelphia, as interne at the St. Joseph's and Bloekley hospitals. During the civil war he served as brigade and division surgeon on the Confederate staff with great distinction, so that at the time when the peace came he was in the responsible position of medical director of the First Army Corps, Army of Northern Virginia. He was physician and surgeon to the almshouse and hospital, and professor of diseases of women and children in the Medical College of Virginia, until about 1881; at which time, upon the resignation of Dr. Hunter McGuire from the chair of surgery, Dr. Dorsey Cullen was chosen to that department. He was one of the founders of the *Virginia Clinical Record*, in 1871, and a co-editor thereof during a part of the time until 1874. He was one of the charter members of the State Society, and interested in the progress of the Southern interstate societies of various names.

PROFESSOR BENJAMIN BALL of the Faculty of Medicine of Paris, who died recently in his sixtieth year, was an author on mental diseases whose elegance of diction and lucidity of instruction brought to mind the qualities of the late Dr. Thomas Watson of London. Dr. Ball was not infrequently styled "the orator of the Academy." His final illness was progressive paralysis. His chief work was entitled "*Les Maladies Mentales*," and indicated the line of his instructions as professor of that branch in the Medical Faculty of Paris.

MEMORIAL OF DR. THOMAS FANNING WOOD, OF WILMINGTON.—The *North Carolina Medical Journal* for April reports that the widow of Dr. Wood has donated the valuable library left to her to the University of North Carolina, where it will remain *in perpetuo*, bearing his honored name. The trustees of the University design still further to commemorate that name by the creation of two Wood scholarships, one of them in the medical department and the other in the department of literature. Dr. Wood was a true book-lover and quite an active collector of rare volumes, his specialties being in vaccination and botany. His long tenure of the position of editor of the journal above named brought into his library a vast number of publications that could not readily otherwise be brought within the reach of the University which now falls heir to them.

MISCELLANY.

DR. DONALD McLEAN of Detroit, has had the degree of LL.D. conferred upon him by the Queen's University of Kingston, Canada.

TWENTY-FIFTH Annual Meeting of the Nebraska State Medical Society will be held at Nebraska City, Neb., May 16, 17 and 18, 1893.

THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS will hold its sixth annual meeting at the Russell House, Detroit, Mich., on Thursday, Friday and Saturday, June 1, 2, and 3, 1893, under the presidency of Dr. Lewis S. McMurtry of Louisville. The following is the preliminary program as far as titles are announced:

1. The President's Address—The Present Position of Pelvic Surgery, by L. S. McMurtry, Louisville.
2. Abdominal Fixation, by Florian Krug, New York.
3. Endoscopic Tubes for Direct Examination of the Interior of the Uterus and Bladder, by Robert T. Morris, New York.
4. Placenta Previa, by William H. Wenning, Cincinnati.
5. What are the Indications for Abdominal Section in Intra-Pelvic Hemorrhage? by M. Rosenwasser, Cleveland.
6. Treatment of Metritis, by E. Pietranera, Cordova, A. R.
7. A Plea for Better Surgery in the Closure of the Abdominal Incision, by H. W. Longyear, Detroit.
8. Remarks on the Treatment after Abdominal Incision, by C. C. Frederick, Buffalo.
9. The Management of the Abdominal Incision, by Chas. A. L. Reed, Cincinnati.
10. Dilatation of the Cervix for Dysmenorrhea, by E. M. Pond, Rutland.
11. Extra-Uterine Pregnancy; with Report of Cases, by George S. Peck, Youngstown.
12. A Contribution to the Study of Ectopic Gestation, by E. Arnold Praeger, Nanaimo.
13. A Few Practical Notes on the Establishment of Anastomosis between the Gall-Bladder and Intestine for Obstruction of the Common Duct with the Relation of a Case of Obstruction of the Common Duct by Small Growth, by James F. W. Ross, Toronto.
14. Vaginal Hysterectomy for Malignant Disease, by Rufus B. Hall, Cincinnati.
15. The Care of Pregnant Women, by John Milton Duff, Pittsburgh.
16. A Contribution to the Pathology of Surgical Disease of the Gall-Bladder, by Walter P. Manton, Detroit.
17. The Legal Questions in Gynecological Operations on the Insane, by Walter P. Manton, Detroit.
18. Pelvic Abscess, by I. S. Stone, Washington.
19. Central Rupture of the Perineum; its Causation and Prevention, by John C. Sexton, Rushville.
20. A Case of Myomectomy with Extra-Peritoneal Treatment of the Pedicle, followed by Pregnancy and Complicated by Hemorrhages through the Abdominal Cicatrix, by X. O. Werder, Pittsburg.
21. Anatomy and Surgical Importance of the Peri-Renal Cellulo-Adipose Tissue, by L. H. Dunning, Indianapolis.
22. Reports of Cases from Practice with Remarks on the Same, by A. Vander Veer, Albany.
23. Further observation on the Relation of Pelvic Disease and Psychical Disturbances in Women, by George H. Robé, Catsville.

A cordial invitation is extended to the members of the medical profession interested in the work of the Association to attend its several sessions.

By order of the Executive Council.

WILLIAM WARREN POTTER, *Secretary*.

AMERICAN PEDIATRIC SOCIETY.—The American Pediatric Society will hold its fifth annual meeting at West Point, New York, May 24, 25 and 26, 1893. The sessions will be held at Cranston's Hotel.

PRELIMINARY PROGRAM.

WEDNESDAY, MAY 24—FIRST SESSION—8 P. M.

1. The President's Address, by A. D. Blackader, Montreal, Canada.
2. This Year's Failures in Diphtheria, by M. P. Hatfield, Chicago, Ill.
3. The Value of Peroxide of Hydrogen in Diphtheria, by J. Lewis Smith, New York City.
4. Brief Notes on the Use of Antipyretic Drugs in the Febrile Affections of Children, by J. P. Crozer Griffith, Philadelphia, Pa.
5. A Case of Laryngeal Diphtheria, by W. D. Booker, Baltimore, Md.
6. Concerning the Care of the Throat and Ears of Children, by W. P. Northrup, New York City.

THURSDAY, MAY 25—MORNING SESSION—9:30 A. M.

7. Intestinal Fever, by A. Jacobi, New York City.

8. Report on a Revisionary Nomenclature of Gastro-Intestinal Diseases, by T. M. Rotch, Boston. (Discussion to be opened by L. Emmett Holt.)

9. Proctitis in Early Infancy, by Louis Starr, Philadelphia, Pa.

10. Studies of Milk from Large Western Dairies, by J. M. Keating, Colorado Springs.

11. Pulmonary Tuberculosis, by William Osler, Baltimore, Md.

12. Report on the Nomenclature of Diseases of the Mouth, by T. M. Rotch, Boston. (Discussion to be opened by F. Forchheimer.)

13. A Case of False Meningocele, by Irving M. Snow, Buffalo, N. Y.

The members of the Society will dine together at 6:30 P. M.

THURSDAY, MAY 25—EVENING SESSION—8:30 P. M.

14. Discussion on the Treatment of Pertussis: *a.* Local, J. P. Crozer Griffith; *b.* Constitutional, F. Forchheimer; *c.* Climatic, William Osler; *d.* Complications, Henry D. Chapin; *e.* General Discussion.

15. Discussion on the Treatment of Constipation in Early Infancy: *a.* Dietetic, L. Emmett Holt; *b.* Medicinal, C. P. Putnam; *c.* Local, Leroy M. Yale; *d.* General Discussion.

FRIDAY, MAY 26—MORNING SESSION—9:30 A. M.

Business Meeting (Private) from 9:30 to 10:30.

16. Etiology of Incontinence of Urine, B. K. Rachford, Newport, Ky.

17. Meningitis Complicating Pneumonia, L. Emmett Holt, New York City.

18. A Paper (subject to be announced), Henry D. Chapin, New York City.

19. Treatment of Certain Forms of Anæmia in Children, F. Forchheimer, Cincinnati, O.

20. Some Points in Connection with the Etiology of Rachitis, J. Lewis Smith, New York City.

21. Treatment of Rachitis with the Lacto-Phosphate of Lime, J. Henry Fruitnight, New York City.

22. Report of Five Cases of Tetany, J. P. Crozer Griffith, Philadelphia, Pa.

23. Acute Scleroderma, William Osler and Dr. Barker.

FRIDAY, MAY 26—AFTERNOON SESSION—2:30 P. M.

24. A case of Erysipelas of the Scalp and Face in an Infant Aged Six Weeks, Samuel S. Adams, Washington, D. C.

25. Description of a New Incubator, T. M. Rotch, Boston, Mass.

26. A Case, W. P. Northrup, New York City.

27. A Gastric Neurosis in Childhood, Irving M. Snow, Buffalo, N. Y.

SAMUEL S. ADAMS, *Sec'y*.

1632 K St., Washington, D. C., April 25, 1893.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from April 29, 1893, to May 5, 1893.

A board of medical officers to consist of Lieut.-Col. George M. Sternberg, Deputy Surgeon-General; Lieut.-Col. William D. Wolverton, Deputy Surgeon-General; and Major Joseph R. Gibson, Surgeon, is appointed to meet at West Point, N. Y., June 1, 1893, or as soon thereafter as practicable, for the physical examination of the cadets of the graduating class of the U. S. Military Academy, and such other cadets of the academy, and candidates for admission thereto, as may be ordered before it.

Capt. Henry S. Turrill, Asst. Surgeon U. S. A., ordered to report in person to the president of examining board at Omaha, Neb., for examination, with a view to determine his fitness for promotion as contemplated by the Act of Congress approved October 1, 1890.

Major John H. Janeway, Surgeon U. S. A., is granted leave of absence for three months and fourteen days. By direction of the Acting Secretary of War.

Col. Charles T. Alexander, Asst. Surgeon-General, is detailed as a member of the Army Medical Board, vice Col. Charles H. Alden, Asst. Surgeon-General, hereby relieved.

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CHICAGO, MAY 20, 1893.

No. 20.

ORIGINAL ARTICLES.

A SUMMARY OF ELECTRO-THERAPEUTIC WORK IN A PRIVATE HOSPITAL.

Read before the Philadelphia County Medical Society, April 26, 1893.

BY G. BETTON MASSEY, M.D.,

OF PHILADELPHIA.

The recent growth of private hospitals devoted to abdominal surgery and other operative procedures deserves attention as indicative of an increased appreciation on the part of the profession of the responsibilities of its work. These institutions have risen in response to a real need. The conscientious surgeon is no longer content to subject his patient and reputation to results necessarily attending operations in offices, private houses, hotels and public hospitals, the latter primarily intended for the alleviation of the poor. A refinement of technique that would ensure the best results required the creation of a machine adapted to the highest quality of work. It is not a little surprising that this most ordinary provision of a proper means for effective work in relieving and curing human suffering should have been so long neglected by the medical profession, while the meanest trades that minister to the wants and vanities of the race have been housed in light and airy apartments, specially arranged for their proper and convenient prosecution.

The private hospitals for major operations have come, and have justified themselves. An extension of this sensible idea now presses upon the profession. If major surgery and the surgery of last resort needs this environment for its success, why should we neglect to supply analogous armaments to the work of curing diseases by conservative means?

There is in fact a double reason for such establishments, for the reinforcement and enlargement of our power to actually cure diseased organs not only leads to greater success in such high work, but lessens also our need to resort to the cruder methods of amputation and removal of parts of the human body yet capable of restoration to health.

An establishment thus devoted to the highest development of the possibilities of electricity and allied agencies in medicine and surgery has therefore a reason for being, in the mere fact that to be well equipped is an important part of the battle in any special line of medical study and art. It has also a reason for existence, more peculiar to itself, in the fact that the principal remedy in its equipment is itself in a transition state, and yet but imperfectly understood. To understand and apply in the most successful manner what is already known of the remedy requires technical knowledge of no mean extent, costly apparatus, and particular facilities; and when the extension of our knowledge of the agent is also

considered, the value of enlarged facilities is even more evident. It is true that many of the uses of electricity in medicine may be prescribed and applied by a physician without an extensive knowledge of the agent, just as he prescribes a ready-made pill, but the highest possibilities of the advancement of therapeutic knowledge in this way are as impossible as that a mere user of the telephone could have done Edison's work.

Such were the considerations that determined the establishment of a private hospital for the development of electro-therapeutics in this city, and the cordial coöperation in the work by many members of the profession has already enabled me to present a brief summary of the results accomplished.

A variety of cases have been under treatment, in the majority of which electricity has formed the principal therapeutic agent, though a not inconsiderable number have received electrical applications as a secondary part of the treatment; rest, massage, regulated exercise and internal medication being associated with them.

FIBROID TUMORS OF THE UTERUS.

Twenty cases of myo-fibromata of the uterus were admitted, presenting many variations of the affection. Of the twenty cases fifteen were of the ordinary solid varieties, to which the Apostoli method is now generally regarded as applicable.

The results obtained in these fifteen cases of solid, interstitial and subperitoneal growths were as follows: No further growth occurred in any, and a complete symptomatic cure was obtained in each of these fifteen tumors thus symptomatically cured; two were also anatomically cured, the growth disappearing entirely in each; ten were greatly reduced in size, two slightly reduced in size, both being still under treatment; and one was not affected as to size.

The five remaining cases were all intra-uterine growths, two being solid polypi with small pedicles. The latter were brought into the vagina by the use of faradic currents and ergot and removed by torsion and division, after which the cavity of the uterus was treated by intra-uterine galvanic currents to prevent a possible re-growth. Three cases were cystic intra-uterine growths of the most formidable kind described. It is well known at present that cystic growths, as a rule, are not amenable to electricity, and after attempting relief by external methods in one of these, a lack of success caused me to refer it to a surgeon. The second intra-uterine cystic growth, forming a tumor as large as an adult head, having been referred to me by a prominent surgeon, was treated by the intra-uterine method with unfortunate results, owing to a failure to maintain asepsis. Death occurred from septicæmia two weeks after admission into the private hospital, as elsewhere reported, the sepsis having been received during office practice.

The third intra-uterine cystic tumor, and the final one of this list, was almost an exact counterpart of this fatal case, though the spongy intra-uterine mass was vascular. This lady was sent to me by a surgeon who recognized the difficulties attending hysterectomy with a wildly dilated cervix, even if she had consented to the operation. After mature deliberation and attempts to enucleate piecemeal, which were desisted from owing to frightful hemorrhage, I decided to apply strong necrosing currents [from 400 to 600 ma.] directly to the presenting portions of the mass at the external and internal os, being convinced of my ability to maintain a reasonably aseptic condition by continuous irrigation, a suggestion which I owe to Dr. Slocum. These currents applied after the bipolar methods practically dissolve tissues in the immediate path of the current, and produce a coagulated condition of living tissue at the periphery of the destroyed path that in itself is a bar to septic absorption for a time. Under this treatment the whole tumor was gradually removed without a drop of blood, as a rule, and at the present time the uterus is almost normal in size.

Reserving an opinion on the future of electricity, in cystic growths of the uterus, it will be seen that these statistics do even more than corroborate Apostoli's claims, for the tumors in at least two of the cured cases disappeared completely by absorption.

CHRONIC METRITIS.

In spite of the prevalent impression that chronic catarrhal metritis is a rare disease and relatively unimportant as compared with inflammatory conditions of the appendages, eight cases admitted into the institution were diagnosed as suffering primarily from this affection. In seven of these the diagnosis was corroborated by the therapeutic evidence of relief of symptoms and restoration of health after cure of the local disease of the uterus. Each of these cases of cured metritis and one case not relieved, with a single exception, showed a general impairment of the health, amounting in some cases to pronounced nervous prostration, and in the treatment employed the disturbance of the nervous system received ample recognition. Mere office treatment with electricity would doubtless have been unavailing in such cases. The nervous symptoms demanded their share of attention; yet had not a gynecological electrical treatment been associated with the rest, massage and general electricity, a failure to relieve would have been equally certain. This class of cases is a continual reminder of the need of the practical association of a gynecological and neurological training in the worker in the diseases of women. The physical and the nervous woman are conjoined by nature in both health and disease, and no mere nosological classification will separate what nature has thus joined together.

Two of these cases were samples of that unfortunately increasing number of women whose relatively normal ovaries have been removed for what was really uterine disease, and I regret to say that the only instance of failure to attain a practical cure was in one of these. A persistent uterine leucorrhœa had continued in this case two years after removal of both ovaries. The discharge was purulent, and emitted an odor so unusually offensive, though unlike that from carcinoma, that I suspected its origin to be an infected ligature at the uterine end of one of the cut tubes.

NEURASTHENIA, HYSTERIA AND NERVOUS PROSTRATION.

Seventeen cases of the allied affections of neurasthenia, hysteria and nervous prostration were admitted to the institution, and in their treatment electricity was made to take a more important role than is usually given it. Recognizing the self-evident fact that nutritive disorders play an important part in the pathology of these affections, and that in some of them the real affection is an auto-intoxication of the system from imperfect action of the organs of digestion, assimilation and excretion, these organs and their controlling nerve plexuses were subjected to the action of galvanic currents of an amperage hitherto unused in such methods. The results have proven the great value of this modification of the rest treatment, rendering cases amenable to it that were failures under the severe stress of mere enforced rest, seclusion and massage. Experience has dictated also that the faradic current usually employed in these cases as a general muscular and sensory stimulant is best replaced by the galvanic current applied with a large flexible pad as active electrode, well soaped to render its labile action agreeable. The surface reaction is far greater than possible in the usual faradic method, and to this is added a stimulation of deeper structures by direct chemical changes that is possible only with this current.

PERIMETRIC INFLAMMATION.

Two cases of perimetric inflammatory deposits associated with the adhesions of old pelvic peritonitis were admitted and treated mainly by the vagino-abdominal method. The most successful result was attained in the case in which the cataphoretic transmission of potassium iodide through the parts was used in connection with the current, old adhesions being loosened, and painful cellulosic deposits and enlarged tubes rendered painless and reduced in size. The addition of a resolvent agent so well known as iodine to the absorbent action of the galvanic current can not be other than extremely valuable in this class of work.

MALIGNANT GROWTHS.

Two cases of sarcoma of the fundus uteri were under treatment for a time, without results that amounted to more than moderate palliation. If electricity has a field of usefulness in carcinoma it is only when the seat of disease can be more readily reached, as in such cases as cancer of the cervix. An experience gained elsewhere convinces me that the palliative effects of electricity in cancerous conditions of the cervix are very valuable, and that they may even be curative when the disease is still distinctly local.

DESQUAMATIVE ENTERITIS.

Three cases admitted into the institution suffering from prostration and chronic invalidism, supposed to be due to disease of the uterus and ovaries, proved to be instances of desquamative enteritis. One of these had been treated for fifteen years for ovarian disease by one of the most prominent practitioners in the country without the true nature of the disease being suspected, and another had been mistakenly diagnosed and treated for five years. A study and examination of the stools, which is invariably made in obscure cases, revealed the true character of the trouble, a chronic desquamative inflam-

mation of some portion of the intestinal tract, usually the colon. In one of these a pulsating tumor lay in the left hypochondriac region, doubtless consisting of thickened membrane and enlarged glands lying over the abdominal aorta. In another case the pulsation was also manifest, and all the cases were bronzed to a varied degree. One was discharged much improved by a treatment consisting of the nitro-hydrochloric acid, arsenic, external galvanic currents and regulation of the diet, and two cases are improving under treatment of a similar character.

My experience in this affection has convinced me that many cases remain undiagnosed by physicians who neglect to avail themselves of the signal aid given in obscure chronic diseases by systematic examination of the alvine discharges.

MISCELLANEOUS.

Other cases admitted presented instances of ovaritis, menorrhagia chlorosis, pernicious anæmia, obstruction of the bowels, meningitis, chorea, multiple neuritis, musculo-spiral spasm, hæmiplegia, locomotor ataxia, etc., in some of which excellent results were obtained; but as the number of each was limited, no general deductions from them will be presented at the present time.

212 South Fifteenth St.

PUERPERAL SEPSIS—LAPAROTOMY.

Read by invitation before the Kansas City Academy of Medicine.

BY A. H. CORDIER, M.D.,

KANSAS CITY, MO.

For ages the cause of "Puerperal Fever" (which is a symptom—not a disease) was supposed to exist in the atmosphere of the lying-in hospital or chamber; it was believed that the fever was an *infectious, contagious disease*—that it was not necessary for actual contact to take place. The many opportunities both on the operating table and in the dead room for studying its pathology have cleared up the mystery. As a result of the recognition of its septic character within the last few years, the puerperal woman has been looked upon as a wounded woman and has been treated as such; so it is now a rare occurrence for a woman to have a "bad getting up" after confinement because practitioners recognize the principles of aseptic surgery and apply them intelligently to the treatment of the lying-in woman. With clean hands and surgically clean instruments used by a clean physician in doing the work in this physiological process of labor the woman will rarely have puerperal fever from *outside sources*.

The causes may be divided into autogenetic and heterogenetic—*i.e.*, self-infection (*from within*) and bacteria introduced from without. In the first type the pathogenic microorganisms are located at one or more points in the genital canal, the fallopian tubes and uterus being by far the most frequent localities, especially the tubes; here the bacteria find a hiding place until the resisting points of the surrounding structures are weakened by any cause; then they produce their direful results. They multiply the instant proper culture fluid is supplied. It is undisputed that the same microbes developed in one fluid may offer more resistance to germicides than those cultivated in other fluids. The recognition of this fact alone explains why germs remaining in the vagina, cervix or uterus as innocuous tenants may, dur-

ing the puerperal period, take on vicious tendencies, multiply rapidly in the lochia and quickly produce the symptoms known as "puerperal fever," and the pathological conditions now recognized (in the majority of instances) as metro salpingitis with the ever present pelvic peritonitis—not cellulitis. The lochia should be a normal fluid following a physiological process, but this like all other healthy processes may be subject to a wide variation, and yet from a clinical standpoint remain within the limits of the lines of health.

A woman with a purulent or catarrhal salpingitis of one or both tubes at the time of her confinement is certainly in more or less danger of developing a puerperal peritonitis or a fever with the accompanying phenomena so vaguely called "puerperal fever" (a term the sooner relegated to the past the better for the lying-in woman; as long as this unmeaning term is used by book writers and teachers, so long will it be necessary for us to unlearn in practice some of the teachings of our illustrious preceptors).

In order to intelligently understand the various types of puerperal sepsis it is necessary to keep in mind the dominant local process producing the symptoms. In arriving at an opinion as to the character of the local pathological process much information may be gained by the educated finger in examining the case, to which of course, as in all diseases the clinical history must be added.

The woman may or may not give a history of previous attacks of salpingitis. Recurring attacks of salpingo-oöphoritis usually result in a closure of the abdominal tubal ostium, consequently pregnancy is not likely to occur if the disease is located in both tubes. Early in pregnancy the woman may contract a gonorrhœa of one or both fallopian tubes. The disease may remain latent up to confinement. During the contraction of the uterus in the expulsion of the child an adherent fallopian tube filled with pus, swarming with poisonous germs, is ruptured or a closed fimbriated extremity is opened up giving vent to this virulent fluid. The peritoneum is inflamed, either locally or diffused, according to the individual susceptibility or immunity to the amount of escaped septic material. If the fluid laden with the septic microorganisms escapes in large quantities into the peritoneal cavity the resulting peritonitis is generally of a diffused character, accompanied by the usual symptoms of a diffused septic peritonitis running its course quickly, terminating in death within two or three days unless early surgery, with gallons of sterilized water and a drainage tube saves her. *The surgery must be done at once.* If the leakage is slight or if the inflammatory process extends by continuity, from tubal mucous membrane to the serous peritoneal coat, the symptoms are not so quickly developed, neither are the results so rapidly disastrous. This is the usual type of the disease, *i.e.*, the special form under consideration (autogenetic).

When this process is once inaugurated in the puerperal woman, no one can foretell with a certainty its progress. Each case individualizes itself and it must for the time being rest with the judgment of the attending physician and surgeon as to the course to be pursued in the case under investigation.

If the attack bids fair to run a mild course as indicated by the mildness of the constitutional symptoms and the trivial local manifestations, the advisability of any operative procedure may be placed in

the balance and weighed while the case is being scrupulously watched for the development of unfavorable indications. The moment such are observed delay should be countenanced no longer.

Gonorrhœal pus is not by all odds the most dangerous fluid we have to deal with in the peritoneal cavity. The gonococci thrive best in localities lined by columnar epithelium, the endothelium of the peritoneum is an almost insurmountable barrier to the farther progress of gonorrhœal infection. It is rare indeed to find an unmixed infectious fluid in the tubes as the ever present pyogenic bacteria soon associate themselves with the gonococci in their destructive invasions.

If at an operation or a post-mortem on one of these cases (puerperal fever) an ovarian abscess is found or a fallopian tube filled with pus, with pathological changes well marked, one may be certain that these changes antedated the attack of peritonitis and may conclude safely that in this locality the starting point of the diffused inflammatory trouble has been found.

There are other localities in which under favorable circumstances, systemic infection of the gravest type may take place. In the uterus, a retained infected clot, or a portion of the secundines may give rise to putrid absorption (sapræmia); or a true septicæmia from absorption of pathogenic bacteria and the pre-formed ptomaines may arise. Either of these conditions is liable to extend to the fallopian tubes and (if the woman lives long enough) develop secondarily the special form of puerperal disease under discussion to-night. It is true that in the puerperal sepsis of vaginal, cervical or uterine origin there is often produced pathological changes in the pelvis, but these changes follow later in the disease than if the trouble was primarily in the tubes.

An œdematous swelling is often felt at one or both side of the uterus where lymphatic or venous absorption of septic material is taking place, but it must be remembered that this poison is outside the peritoneum and that the outer side of this serous sac has wonderful resisting powers to septic invasions.

Even in the rare instances where (following a cervical laceration) a true pelvic abscess forms in the broad ligament holding a pint or more of pus, the upper or intra peritoneal side of this membrane will be found perfectly healthy in many instances and all the pelvic viscera free from any marks of inflammatory disease.

Where the uterus is the focus of absorption the systemic symptoms develop early—of an intense character owing to the large absorptive surface exposed to the poison. The woman may die before any local results have had time to develop. The uterus will be found large and soft, and an early, thorough and oft repeated antiseptic irrigation may cause the alarming symptoms to disappear quickly. If the disease is in the main located in the tubes, irrigation will avail nothing, and the pulse and other indications upon which we rely for a favorable prognosis will remain unchanged.

The temperature is very misleading in all forms of puerperal sepsis; especially is this true of that variety in which the intensity of the disease is located in the peritoneum. The pulse, tympanitis, and physical examination of the pelvic organs are the most to be relied upon in giving a prognosis.

Before resorting to operative procedure investi-

gations should be carried in all directions, that no mistake be made, and if in doubt as to the exact source of the sepsis, begin with the less hazardous procedure and watch the results closely, keeping on the alert constantly for any new developments that would point to any error in diagnosis that the method may be intelligently changed with a fair prospect of saving the patient. *Do not persist in one treatment too long unless marked improvement is seen and is continuous.*

If this early treatment has produced rapid improvement and the patient does not have recurrences of the bad symptoms, while continuing this course, one may feel sure that the right treatment is being pursued. For instance: a woman two days after labor has a chill followed by a temperature of 105° F., checking of lochia; antiseptic intra-uterine injections are used, three or four times in the twenty-four hours, the patient's temperature comes to normal, the lochia returns and the patient's condition is quickly changed from one of great danger to a comparatively safe state. Now this woman may remain free from fever and her convalescence be uninterrupted by any bad symptoms. If the symptoms were produced by absorption of putrid material, and if the treatment has removed the offending substance all is well, but, now if any of this poisonous decomposing mass is left behind and infection with the staphylococcus or streptococcus takes place, an inflammatory process is quickly lighted and extends rapidly to the fallopian tubes, and the woman either dies of sapræmia, septicæmia or by the slower and more painful peritonitis, abscesses, secondary to tubal extension; or she gets well from quick and sensible surgery or has a slow convalescence, followed by prolonged invalidism. How many cases have we all seen giving a history like this?—"Was confined for the last time two or fifteen years ago, had childbed fever, has not seen a well day since, up one day about the house, but down the next. The cot or bed is her greatest comforter." I saw two cases like this, to-day. Examination revealed old inflammatory bands binding down a large subinvolted uterus, the cul-de-sac filled with adherent fallopian tubes, ovaries, sigmoid and coils of ileum. Surgery will cure both these cases at an early date.

Case 1.—This case was a patient of Dr. Ritter of this city, a careful clean practitioner, doing considerable obstetrical work. All aseptic precautions were thoroughly carried out during the delivery. The patient "died, not as a result of the surgery, but in spite of it." Had this patient been operated on earlier her chances for recovery would have been greater. An operation had been urged for several days before the consent of the patient was obtained.

This lady, nineteen years of age, confined in December; first child; perineum lacerated down to sphincter; had a clean delivery attended by a clean doctor. Two days following confinement had a chill followed by fever of an inflammatory or septic type. Uterus irrigated thoroughly and curetted at this time, followed by a slight decline of the febrile symptoms for a short time; the pulse remained up to 120 to 130, an indication within itself that the woman had trouble that had not been removed. The fever soon returned to its former height and would remain high until a diarrhœa (drainage) reduced it for a day or so only to return again. For five weeks her case had pursued about this course; at this period I saw her the first time. Her temperature at my first visit, was 102° F., pulse 130, and very weak. Examination revealed a healed perineal tear, and the uniform œdematous infiltration in the vaginal vault known to the older authors as pelvic cellulitis. An inflammatory diaphragm extended from one anterior superior spine to the other; no fluctuation but great tenderness. Uterus not large.

Operation performed in sixth week following confinement. Two days before operation her temperature was 103° F., pulse 130. A thorough purging in preparing her for the operation reduced her temperature the day before the operation to 99° F. On morning of the operation her temperature was 97° F., pulse 130, an unfavorable condition it is true, for an operation, but bid fair to be the best I was likely to find her in.

At the operation I found as I had predicted, many firm inflammatory bands binding down the uterus, matting together the intestines, omentum and tubes. *The uterus was firm and about the size one would expect to find five weeks after delivery.* The ovaries and tubes on the right side were filled with pus and firmly bound down under the uterus; the left tube was likewise distended with pus; there was nothing left of the left ovary but a cheesy disorganized mass. The adhesions were broken up, sound organs liberated and diseased structures removed, the peritoneum irrigated, and glass drainage tube introduced. Entire time of operation thirty minutes. The patient reacted nicely and bid fair for forty-eight hours to recover. At this time her heart gave out and my patient died—not from an extension or rekindling of the peritonitis, but from exhaustion induced by her long illness prior to the operation.

Every puerperal woman developing a fever does not necessarily imply that a laparotomy is the only resort, but it does signify that she has somewhere a cause for the fever and that the focus of absorption is in the genital tract in the majority of cases. The variety or location in this tract should point out the proper treatment.

This case was operated on since this article was read. I now add it to the above report.

Case 2.—Puerperal Sepsis. —Laparotomy.—Recovery.—This lady two or three days after labor developed a "puerperal fever," having suffered much in region of right ovary during the last few months of her pregnancy. When I saw her two weeks after confinement she was having a septic fever, with much pain in pelvis. Examination revealed a "boggy" mass to right of uterus extending to a level with the anterior superior spinous process. This examination was made two weeks after labor. She was septic, temperature running from subnormal to 104° F., pulse from 110 to 140.

Operation revealed the true character of the mass to right of uterus; omentum, bowel, fallopian tube and ovary all matted together. The tube was cheesy and disorganized, showing well marked evidence of long pathological changes. Sound organs liberated and diseased structures removed, gallons of hot sterilized water used with irrigator, drainage and recovery.

This was certainly a case of autogenetic puerperal infection. That the woman was septic, as much as any one could be and live, is beyond doubt.

The right fallopian tube and its contents were responsible for the attack.

DEDUCTIONS.

1. Many cases of puerperal sepsis develop regardless of any aseptic precautions on the part of the accoucheur. In the majority of cases in this type of the disease the foci of infection will be found in the fallopian tubes.

2. Fallopian tubes may be infected with the gonococci, or other specific or pathogenic bacteria after impregnation.

3. Pathogenic microorganisms develop more rapidly and are more virulent during the puerperal period. This is due to the fact that (either) the secretions are more favorable culture fluids or there exists a weakening of the resisting powers (want of immunity) on the part of the lying-in woman.

4. Rely upon the physical examination of the case under investigation in classifying the form of the disease you have to deal with.

5. After deciding as to the location of the poisonous foci, the treatment at once suggests itself.

6. If in doubt as to the source begin with the milder procedure and watch closely the results of your treatment. If permanent improvement does not soon take place direct your course in another direction. Surgery in these cases must be done *early, thoroughly* and quickly to insure the lowest rate of mortality. Delayed and imperfect work will, in these cases, always bring disastrous results.

Rialto Building.

CONTAGIOUSNESS OF CONSUMPTION.

Read before, and unanimously endorsed by, the Medical Association of Georgia, April 20, 1893.

BY J. G. HOPKINS, M.D.,
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The question as to whether consumption is contagious or not is one of vital importance to posterity as well as to the present generation. While the theory of Koch is becoming generally accepted, there are still many who are skeptical upon the subject. These skeptics, in a great measure, are confined to those who have not given the work of Koch and his collaborators much of their time or attention. They look upon the bacillus as septic or putrefactive rather than pathogenic. I have joined that growing army which places tuberculosis in the category of contagious diseases, and my experience with this disease during nineteen years of investigation in Thomasville, which place is a resort for consumptives, bears me out in my opinion and makes me a willing subject of the great and erudite Koch. I do not intend, in this article, to delve in the depths of science by entering into minutiae, but simply to deal with facts as we find them.

We will take, to begin with, the negro, a creature in whom, prior to and during the war between the States, consumption was unheard of. In those days he was properly fed, properly clad, kept out of doors in the day time, was never crowded, and rest at night was compulsory. This process kept him, as far as possible, up to the "norm," and he was better enabled to wrestle with such disease germs as may have invaded his person. There is a vast contrast between then and now; his environments are materially changed, as any resident of, or sojourner in the South can testify. It is a well known fact, as shown by the records of our sexton, that more negroes die of consumption in Thomasville since the place has been a resort than ever before, and we find also that most of those who die of it have been at some time or other connected with some hotel or boarding-house in the capacity of chambermaid, laundress, or some other which exposed them more than others to the invasion of the tubercle bacillus. It is true that the whites escape to a far greater extent than the blacks, but it is also true that they are not as intimately connected with these subjects, and it is a well known fact that the whites possess far greater powers of resisting disease than the negro—except those of malaria and syphilis. We see this exemplified more particularly in diseases of the air passages. The percentage of recovery from pneumonia is so small that it is rare for a negro to recover from a severe case of the disease.

Frequently we find that the wife of a consumptive husband, or *vice versa*, comes down also with consumption, and dies as did the loved companion of life. Many instances of this character could be

mentioned in which it was impossible to trace any family taint whatever in the subject last to succumb to the disease, the one evidently contracting it from the other. We may and do inherit color of hair, eyes and many family characteristics, and we do also inherit conditions of lungs and throats which supply proper pabulum for sustenance and afford ample culture fields for the propagation of the tubercle bacillus, hence we frequently find that more than one member of the same family dies of consumption.

I do not doubt but that all men, women and children at some time or times receive into their air passages the tubercle bacilli, but fortunately the great majority possess the power of repelling them and throwing them off. They do not find that soil, so to speak, which is adapted to their growth. As we find in our fields soil within which certain grain will germinate and reproduce its kind, and other again upon which the same grain would fail to germinate, or if it did germinate would spring up but to wither and die for want of sustenance; just so we find birds, quadrupeds and persons in whom the tubercle bacillus will find ample conditions for its reproduction; others in whom this pabulum is entirely wanting; and others again in whom it is so scantily found that the bacillus, after struggling for existence for a time, is cast off, leaving the subject to regain as good health as before the invasion.

Most of the caged animals die of consumption, and the anti-contagionist would say it is because of environment. I admit that environment plays a conspicuous part in the propagation of this disease, but numerous experiments upon animals have shown conclusively that there must be more than this. Trudeau subjected a number of rabbits to similar conditions—those of confinement in damp dark places, scanty sustenance, etc., half of which number he inoculated with tubercle bacilli, and separated them from the rest; within four months all of those inoculated but one had died of consumption, and this one being killed was found to have a well developed case of it. At the expiration of the fourth month all of those not inoculated were killed, not one having died, and the most searching autopsy failed to reveal the slightest evidence of disease in a single one of them. The same number of inoculated rabbits were now turned loose on an island. They were in their native element and well fed; freedom, sunlight and all conditions conducive to health were provided. Only one of them died of consumption, while at the end of four months the remainder were by autopsy proven to be in a state of perfect physical condition.

Animals confined in museums are not only subjected to an unnatural life, but to the filth and foul odors of their cages, the dampness resulting from washing out these cages, and exclusion of sunlight, all of which are strong factors in lowering vital energy, but are hourly exposed to the tubercle bacilli, which are spat about the building and often even in the cages themselves, by the consumptive spectator, who unwittingly scatters these germs of destruction broadcast as he passes by with the eager throng of lookers on. One animal may yield to the invasion, and it is not discovered until he has impregnated that cage with germs enough to destroy every animal ever put into it, for they are passed from one to another, and will be throughout eternity, unless proper action can be taken to prevent it. These creatures in their native state never die of consumption.

Roaming the wilds at will, with no shelter but the broad canopy of heaven, and warmed into animation by the glorious sunlight, that mighty destroyer of germ life, they are placed beyond the ravages of the tubercle bacillus. Just so it is with the higher order of animals.

Indians in a state of nativity seem impervious to the germs of consumption, but are now dying by thousands on the reservations. The whites and the blacks in prisons and asylums all over the world, labor under similar conditions. A report from the Illinois State Prison at Joliet says:

"There are fourteen hundred convicts within the walls, and fully one-third of them have consumption in a light or bad form. Nearly all deaths of persons in the penitentiary have been caused by consumption, and as a rule, all long termers either die within the walls from the disease or are pardoned out on account of it."

The percentage of mortality from consumption at the Georgia Lunatic Asylum is $39\frac{2}{3}$ per cent., and in other asylums and prisons it is much the same. In States where the "farming" system with convicts exists, this condition of things does not obtain. Statistics from the Georgia convict camps collected and published by my father, Dr. T. S. Hopkins, show that out of 2,803 convicts farmed out in various sections of the State between Oct. 1, 1890 and Oct. 1, 1892, covering a period of two years, there were only nineteen deaths from consumption, making a mortality of $3\frac{1}{6}\frac{3}{10}$ per cent. Now being in possession of these facts, convincing as they are, that environment plays a prominent part in the propagation of the disease, is there wisdom in congregating those already diseased, or herding together the sick and the well? There is no doubt in my mind that danger lurks in sleeping cars, in carpets, bedding, clothing and in the walls of apartments occupied by consumptives, which have not been properly renovated and rendered innocuous by antiseptic measures, and if it were not for the fact, as I believe, that the direct rays of the sun will destroy this bacillus, the inhabitants of consumptive resorts would be in far greater danger than they are from the myriads of them that are daily spat upon the streets. It is a known fact that the more nearly we approach the original man in our habits of life, the more exempt we are from disease; hence, it is apparent that isolation in the cottage system in a section of country as nearly "aseptic because it is antiseptic," as we can find, coupled with an observance of antiseptic laws will afford the most fruitful source of relief to the pulmonary invalid, and do most toward preventing contagion.

Hundreds of years have been spent in searching for a remedy which would successfully baffle this fell destroyer, whose ruthless clutches drag annually from America to eternity one hundred thousand souls, and still the search goes on. Each year serves but to convince us more fully that from drugs but little can be expected, and we can but continue, as has been done ever since the beginning of the art of medicine, to try the efficacy of climate. Ever since the days of Hippocrates, consumptives have been sent to the pine forests, as they are to-day. That the bacillus is often rendered inactive and an arrest in the progress of the disease induced by a sojourn in these pine sections is evidenced by ample proof, but how much more could we expect if these cases were

scattered through the country in cottages rather than massed in the cities and towns in crowded hotels, where they are dependent, for a part of the time at least, upon oxygen abstracted from air polluted by excretions and exhalations from the bodies of other invalids, and they themselves adding to the fruitful source of contamination.

Consumptives should be forced to provide for the destruction of sputa. Whenever situated so as not to expectorate directly into a germicide or the fire, they should use some means of conveying the sputa to the germicide or the flames. If handkerchiefs or cloths be used they should not be sent to the laundry as human happiness and life are jeopardized through the probability of inoculation through abrasions upon the hands. These bacilli should never be allowed to dry up and impregnate the air, as is now done through ignorance of possible results. Numerous experiments by leading medical authorities have proven beyond doubt that consumption is an inoculable disease, and so rapidly is the throng of converts growing that I would not be surprised if, even in my day, resorts now soliciting the patronage of the consumptive, will be quarantining against him.

TUMORS OF THE BLADDER.

Read by Invitation before the Wisconsin State Medical Society, May 5, 1893.

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HISTORY.

The literature of the subject of tumors of the bladder is almost wholly modern. The ancients had a lively sense of the dangers of meddlesome interference with the bladder and although the operation of stone crushing has probably been known from the earliest times it is only since the day of Civiale and Leroy d'Etiolles that tumors of the bladder began to be commonly extirpated. According to Tuffier¹, Varner in 1750 removed a vesical polypus, but no details of the case are given. The silence on the subject is the more remarkable when we consider that instead of being infrequent among other affections of the bladder tumors are common. Sir Henry Thompson, than whom there has been no higher modern authority, relates that in November, 1880, he practiced exploratory incision in the urethra for a case which he was unable to diagnose by the methods then adopted; "most unexpectedly," he says, he found a polypoid tumor. Subsequently, in thirty out of eighty cases of digital exploration of the bladder, Sir Henry found tumor.

ETIOLOGY AND PATHOLOGY.

The causes of vesical neoplasms are very obscure, but indeed the same general observation may be made regarding tumors elsewhere. The law of Müller that all tumors consist of some tissue-type previously existing in the body holds true here as elsewhere. The tumors commonly met with in the bladder, are of the two general characteristics, malignant and non-malignant.

The malignant tumors are:

Sarcomata.

Carcinomata.

To these may be fairly added *Tuberculosis*, if we could forget that Tuberculosis is a degeneration rather than a neoplasm. The nomenclature of the Royal College of Physicians and Surgeons still classes Tuberculosis among the tumors.

The non-malignant tumors are classed by Barling:

Papillomata, Fibro-Fimbriated.

Fibromata.

Fibro-Myxoma.

Myxoma.

Adenoma.

Angioma.

Enchondroma.

Dermoid Cyst.

Hydatid.

Watson (Int. Clinic, Oct. 1891) notes a fact remotely bearing upon causation, that (1.) Males are affected more than twice as often as females; (2.) Excepting myxoma all forms of bladder tumor occur more frequently after thirty-five and carcinoma more frequently after fifty.

Concerning the site of these tumors, Tuffier quotes Guyon as stating that on examination he found that the tumor originated as follows:

At the orifice of the right ureter 45 times per 100.

At the orifice of the left ureter 26 times per 100.

In the interspace between the ureters 10 times per 100.

The remainder were variously dispersed.

This corresponds well with Gilbert Barling's statement after inquiry into 260 cases, that two-thirds of the bladder tumors are found springing from the base. Barling is of opinion that certain of the unusual tumors occurring in the bladder, such as the dermoid cysts, may originate in the adjacent tissues and gradually make their way into the bladder.² He asserts that fibromata usually spring from the neck of the bladder or orifice of the ureter. It is of course known to general pathologists that fibromata must come from the connective tissue; they could not spring from the mucous structure.

The site of the myxoma while usually at the base of the bladder is not so constant.

In seventy-four cases of papilloma Barling found eleven commenced near the right ureter, and two near the left. These statistics corroborate those of Fenwick made to the Pathological Society of London in 1889, where he also asserted that the male was affected three times as often as the female, as shown in a series of 634 cases. Sixty per cent. of the cases were simple; of the single, 43 per cent. sprang from the orifice of the right ureter, to 26 per cent. from the left. Eighty-six per cent. of these growths were at the inferior zone originating at the margins of the trigone, pedunculated wholly or partially in proportion two to one; nobody has as yet vouchsafed a conjecture as to the reason for this curious fact, but the nearly constant proportion of two to one springing from the orifice of the right ureter in preference to the left, shows that some law, not accident, determines this matter.

The external shape of bladder tumors is very variable, the benign tumors having generally broad bases, and fringed or are polypiform, while the malign tumors are generally spread out, and irregular on their surface. In early cases of tuberculosis of the bladder I have often found irregularity of the surface, even where the mucous lining was as

¹ Traité de Chirurgie, Duplay and Reclus.

² Birmingham Med. Review, Aug., 1892, et sequitur.

yet unbroken. The volume of bladder tumors is rarely great, usually varying from the size of a filbert to that of a hen's egg. Tuffier mentions an unusually large tumor that had attained the size of the fetal head.

But the relations of the tumors to the bladder wall must always have the highest practical interest for the surgeon, as the nature of the operation to be subsequently performed must be entirely based upon the fact as determined, whether the tumor is pediculated, sessile, infiltrated or implanted. (Guyon.) Barling asserts that the fimbriated papillomata arise from the mucous surface by a narrow base which often forms a pedicle of some length, while the fibropapillomata arise either by a broad base or are quite sessile in their attachment and altogether more solid. True fibromata are usually pediculated.

Myomata as the name implies, are composed of muscle cells, and spring from the muscular wall of the bladder and have a wide base. The fibro-myomata spring from the muscle fibrillæ. These tumors sometimes fill up the entire cavity of the bladder and give rise to serious symptoms of vesical disease.

A brief description of the physical appearances of the more common varieties of bladder tumors will be useful in this place.

Papilloma.—Under the name of villous tumor, Rokitansky described a form of carcinomata springing from the mucous surface of the bladder growing like a cauliflower, which he called epithelial fungous. This, without doubt, is the same as those cases wherein recent observers speak of the epitheliomatous transformation; but following a less flexible nomenclature we discard the term villous, and speak of papillomata as vegetations growing as papillary prolongations from previously existing papillæ of the vesical mucous membrane. Should at any time epithelial proliferation take place the epithelial cells by infiltration crowd the other cells, and eventually supersede them; the innocent papilloma has then become a true carcinoma, and the future history of the growth is that of epithelioma, in which, owing to its poverty in connective or fibrous tissue the blood vessels are loosely supported, and hemorrhage becomes the most prominent symptom.

Unchanged and without interference, the papilloma spreads out into arborescent vegetations, gives rise to no pain, but bleeds profusely, and when the size has become sufficiently large causes spasm of the bladder after micturition. The papilloma grows slowly but without ceasing and sometimes long hair like vegetations are broken off and carried out with the urinary current. Sometimes these tumors become the seat of incrustations of the urinary salts, and the sound gives the sensation as of a stone.

Myxoma.—This tumor is composed of mucous tissue cells, is generally pediculated, and resembles the mucous polypi elsewhere; it grows rapidly and is most frequently seen in very young patients; in female patients these polypi may protrude at the meatus.

Myoma.—The myomata exist in two forms, the pure myoma composed of muscle cells and springing from the muscular coat of the bladder, and the myofibroma which more commonly takes its origin from the prostate. These tumors are capable of attaining a very large size.

Sarcoma.—This tumor is much more rare than the benign tumors or the carcinomata; its growth is ex-

remely rapid, there is usually great hemorrhage, and considerable pain. Sarcomata of the bladder, as elsewhere is more frequent before fifty years of age than subsequently. A case of sarcoma fell under my observation at the Presbyterian hospital in Chicago, which occurred in a patient over fifty, in whom the tumor recurred to its original size within three weeks after removal. The patient is still under observation, but is comparatively comfortable. He has supra-pubic drainage.

Carcinomata.—While many varieties of carcinoma such as scirrhus and medullary are rare, epithelioma on the contrary, is extremely common. Tuffier asserts that in fifteen necropsies seen by him there were eleven cases of general carcinomatous infection. In seventy-four cases of carcinoma of the bladder, Barling found forty-seven were epithelioma and twenty-seven cases were other varieties of cancer.

All the other growths named may be said to be rare, as they are only now and then met with. Andral, Rokitansky, Klebs and Limbeck have seen cysts in the mucous wall of the bladder. Before proceeding to the general consideration of symptomatology, let me emphasize the statement that if we might include tuberculosis we should find by far the greater number of cases malignant, and even excluding tuberculosis the proportion while not so greatly in excess, is still on the side of malignancy.

SYMPTOMS AND DIAGNOSIS.

We will now consider the symptoms and diagnosis of these tumors, for, as in many other cases, an early diagnosis alone makes successful treatment possible.

There are no doubt many cases of bladder tumor that remain in abeyance or "latent" for a long period without giving rise to many pronounced symptoms. In such cases the neoplasm is not actively growing. When the tumor commences to proliferate actively the sign of hematuria is present with more or less constancy. In a vast majority of cases the first symptom which will cause the patient to consult the surgeon is hematuria, and the manner of its appearance often gives the surgeon an important clue. When the hematuria is only noticed after micturition, it may be fairly ascribed to local causes within the bladder, for hemorrhage from the kidney is usually continuous. One exception to this statement must be noted, that is when from traumatic causes there is a very considerable hemorrhage from the kidney; there is then clot formed in the ureter. This clot becomes a nearly perfect cast of the ureter, and is sometimes voided whole, or as round clots in pieces of varying length. Such clots positively prove the origin of the hemorrhage. Moreover, tenesmus of the bladder does not materially increase the hematuria in cases of kidney hemorrhage, nor is it increased by catheterism. In case of bladder tumor on the contrary, either tenesmus or catheterism will usually produce the flow. To return a moment to the coagulæ. Bladder coagulæ are always in irregular masses, and sometimes contain the debris of villous tumors, the fimbriæ of the papillomata. After a free hemorrhage from a bladder tumor there is usually a cessation of the hematuria for some time. This period is of greater or less duration according to the size of the tumor. Barling found hematuria in 162 out of 201 cases of bladder tumors, and as the first symp-

tom in 129. Papillomata were accompanied by hematuria in seventy-three out of seventy-nine cases and as the first symptom in sixty-three. Tuffier as well as Barling notes the varying character of the hematuria from day to day and hour to hour. In the morning highly bloody, in the evening the urine scarcely tinted. These cessations and these variations in quality gradually disappear with the growth of the tumor and finally there is but little daily variation, as well said by Watson, (*International Clinic*) "the hemorrhage is intermittent and progressively increases."

The source of this hemorrhage may be either from loosely supported vessel walls in the vegetations, or in rare cases by ulceration and rupture, the latter occurring chiefly in malignant tumors.

Fragments of the tumor may be frequently found in the urine, especially if there has been much hematuria. To collect them I have directed that the urine should be filtered through gauze, which may then be examined with a low power. It is exceptional, however, that these fragments will show completely the morphology of the tumor. That there are fragments at all show that the tumor is of the villous character. Recommendation has been repeatedly made for washing out the bladder in order to bring with the outflow as many of these fragments as possible. To this practice David Wallace, in a paper read before the Medico-Chirurgical Society of Edinburgh December 7, 1892, objects that "the plan is useless because these fragments are often retained in the bladder for some time and are macerated, and thus allow of no conclusion; secondly, it is dangerous on account of the risk of setting up a hemorrhage."

Pain and Irritability.—Pain, which is frequent in the latter stages of bladder tumors, is very commonly absent in the beginning, but it progresses equally with irritability. In a small proportion of cases pain is the earliest symptom. Barling, in his admirable article already quoted, says "frequent micturition and pain either separately or together, may first attract attention. Such was the case in ten out of seventy-six cases of papilloma and eighteen out of thirty-nine of other innocent growths, seven out of twenty-two sarcomata and twelve out of sixty-four carcinomata—in all forty-seven out of 201 cases." "It will be seen," says Barling, "that these two symptoms, more commonly than the hemorrhage, indicate in the first instance the presence of a *firm* growth such as fibro-myoma or fibro-myxoma."

When the bladder becomes nearly filled with the tumor, then there is not only the pain due to the growth, but violent tenesmus, with frequent micturition. By abdominal palpation we may learn something and indeed gain very definite information if we conjoin the external palpation with the rectal or vaginal touch. In the male the finger in the rectum, while the other hand is pressing the hypogastrium, gives full information of the size of the prostate and of any irregularities that may be present in the bladder wall. The catheter or sound may also be used with one hand, while the finger of the other makes the recto-vesical exploration. In the female the tumor, unless attached by a very narrow pedicle, may be felt through the anterior wall of the vagina with great ease. In sounding the bladder, antiseptic precautions should be taken by requiring the instruments to be boiled before using. In case it be deemed

expedient to distend the bladder, a solution of boracic acid 4 to 100 may be used, but it must be remembered that the bladder should be entirely empty to obtain the full benefit of a bimanual examination. Barling, who praised highly this form of examination, recommends that during this examination the fixation of the bladder to surrounding tissues, if it exist, should be noticed, and as well the lumbar and pelvic lymphatic glands, for the purpose of gaining information regarding the malignancy of the growth, or otherwise.

The cystoscope, which in the hands of Nitze, Leiter and Fenwick has given such excellent results, will be found of little value in general practice, although of so much value to those expert in its use. The obscuration of the cystoscope window by mucus from the urethra or bladder is quite frequent, and in case of hematuria the obscuration may be total. It is well, however, to try the instrument, because in some cases a clear view may be obtained. To render the instrument aseptic it should be immersed in a weak solution of carbolic acid for ten minutes before using. Watson recommends that the bladder should be washed to clear it of mucus before using the cystoscope, and that the capacity of the bladder should not be less than five ounces and some clear fluid contents should remain in the bladder. It is proper to state that as the modern cystoscope is essentially a hollow tube with an incandescent beak, this beak becomes extremely hot if burned in the air, but in urine or water remains cool. The cystoscope can not therefore be used in an empty bladder, nor can the beak be allowed to touch the mucous membrane. Moullin (*Treatise on Surgery*, 2d American Edition) has pointed out that even under the most favorable conditions the visual field of the cystoscope is very limited; "that only a minute part of the bladder wall can be seen at one time, and that even with the naked eye, when the bladder is laid open, it is not always possible to be certain as to the clinical features of a minute growth. Natural rugosities of the bladder wall, low villous growths of an inflammatory character such as are not unfrequently met with in cases of calculi, prolapse of the ureter and many other conditions, present a closely similar appearance."

Watson asserts that in favorable conditions it can be decided with the cystoscope whether the growth is pedunculated or sessile or has an ulcerated surface. When ulcerated, with raised, ragged or oedematous edges, the probability is that the tumor is cancerous. "The fine villous projections of the papilloma often give a most characteristic and beautiful picture. . . . The condition most likely to be mistaken for a bladder tumor is the projecting portion of a hypertrophied prostate, and this is especially true when its surface is occupied by granulation tissue, but the position of the growth, the detection by rectal touch of the hypertrophied prostate, and the history of the case will usually make its nature clear." Incrustations also may be detected by the cystoscope. It has already been mentioned in this paper that bladder tumors where greatly projecting frequently become incrustated with phosphatic deposits to an extent that sometimes causes them to be mistaken for stone.

Dittel, *Weiner Medicinische Wochen*, Nov. 24, 1892), gives another instance in which cystoscopy fails, that is in presence of acute nephritis or pyelitis, and also

in cases where the capacity of the bladder is so small that its expansion is impossible. Finally, it may be said for the cystoscope that in favorable cases it gives very material light on the question of the best route for removal of the growth. Fenwick, an enthusiast on the subject of the cystoscope, and whose own instrument is one of the best, asserts that as between that instrument and the "Boutonnière périnéale" as a means of diagnosis, he had negative results twice in forty-three cases of cystoscopy and fourteen negative results out of forty-three by the boutonnière périnéale. It will be remembered that this operation was the favorite method of Sir Henry Thompson.

Dr. A. F. Norton, (*Medical Press and Bulletin* 1892) has tabulated a diagnostic summary between tumors and calculi, as follows:

TABLE A.—DIAGNOSIS.—(NORTON.)

	Tumors of Bladder.	Stone in Bladder.	Stone in Kidney.
Blood . .	Large clots	Clots in shreds . .	Mixed freely with urine.
Mucus . .	Often none	Always present . .	None.
Pus	None	Quantity corresponds to amount of mucus.	Pus present in quantity with little or no mucus.
Irritability of Bladder.	None unless tumor enters urethra.	Great	Depends on presence of pus.
Pain . . .	None unless in region of meatus.	Always marked and extending to perineum.	Pain in one or both loins.
Sound . .	Occasionally slides over soft tumor.	Detects stone.	No result.
Cystoscope	Detects tumor unless much blood.	Detects stone.	No result.

Exploratory Operations.—The boutonnière périnéale originally proposed by Sir Henry Thompson, and followed by Whitehead, consists in making incision externally into the membranous urethra, then passing the finger into the bladder through the prostatic urethra, and making digital exploration. The idea evidently sprung from the fact that the bladder could be easily explored in the female through the short urethra. This operation is contra indicated in very fat persons and those in whom there is great enlargement of the prostate.

We may now summarize the general diagnosis: We must make the diagnosis from renal disease, renal calculus, cystitis, vesical calculus, vesical varicosities, and hemophilic hemorrhage. To exclude renal disease and tumors of the kidney we must make careful physical exploration of the kidney by ballottement, and abdominal palpation, and chemical examination of the urine; we may exclude tumor from renal calculus by the history of the case, which would show a record of renal colic, ceasing on passing of the stone, and the blood following the cessation of the pain. During the continuance of the colic there is usually severe pain in the glans penis. Renal colic is absent in cases of bladder tumor. The sound will easily detect the presence of vesical calculi, excepting the cases of incrustations which as already mentioned are best detected by the cystoscope. In cases of stone the hematuria is not usually increased by the operation of sounding, nor is the hemorrhage as severe in stone as in cases of tumor. Varix of the bladder is extremely rare and may be detected by the cystoscope. In cystitis there is less hematuria, the pain is more acute, the tenesmus is more frequent, and palpation shows little thickening or infiltration of the bladder wall. Hemophilic bleeding is usually accompanied by hemorrhages elsewhere, or

accompanied by the scorbutic cachexia; certain idiosyncrasies of the patient may also cause parenchymatous oozing, and finally vicarious menstruation from the bladder may take place, in so small a proportion of cases, however, as to render this circumstance scarcely worth consideration.

Progress and Prognosis.—Enough has been said of the general character of bladder tumors to show that while they follow the same general rules applicable to malignant and non-malignant tumors elsewhere, yet the benign tumors destroy life by repeated hemorrhages almost as certainly as the malignant tumors cause death by the natural progress of the growth. The danger of the epithelial substitution even in the most benign neoplasms, is always to be considered. Occasionally the simpler non-malignant tumors may remain in the bladder for several years, without other symptoms than infrequent light attacks of hematuria, and there is always amelioration of the symptoms after expulsion of fragments. Other varieties rest quiescent for a long time without giving rise to any very pronounced symptoms, when they suddenly develop with extreme rapidity and progress to a fatal termination. Sarcomata and carcinomata rarely extend beyond a period of three years, usually causing death within that time. (Albarran.) Barling's tables gives the average duration of life in cases of papilloma at a little over six years; two-thirds of twenty-five cases in which there was no interference died before the expiration of five years.

TREATMENT.

The medical treatment of bladder tumors, as may be well supposed, is of little avail. The internal hemostatics such as ergot, gallic acid, tannic acid, and aromatic sulphuric acid have been recommended in cases where patients refuse operation, for the lessening of the hematuria. To relieve the spasm, lavage of the bladder with antiseptic solutions is recommended. The clots should be frequently washed out.

Operative interference may be divided into the palliative and radical treatment. The palliative operations consist in perineal section or supra pubic cystotomy. As between the two methods I very much prefer supra pubic cystotomy. This operation which is also extremely useful as a palliative in cases of tubercle, gives great relief in all cases and especially in sessile tumors and as well in the inoperable ones. Spasm of the bladder is surely prevented whenever a free outflow of the urine is secured, and many a patient hopelessly diseased is made comparatively comfortable by this operation. The application of caustics or antiseptics is made easier by having a free opening, through which they may be made. Efficient drainage, always an important factor in treatment may be secured by either method but the perineal method has always the disadvantage of occasional, sometimes frequent prostatic obstruction.

The radical or curative treatment consists in the use of the same two routes of reaching the bladder, but occasionally where a large opening must be made in the bladder the supra pubic operation is made at two sittings (a deux temps). At the first operation the bladder is reached and stitched to the wound, which in two or three days is sure to be extra-peritoneal. At the second operation the bladder is

opened either by the Paquelin cautery or the scissors, and the tumor dealt with. The treatment of the tumor consists in avulsion by forceps, curetting, cauterization or extirpation by the knife. For tumors with a pedicle, nothing is easier than avulsion, but these tumors constitute a relatively small proportion of those encountered, which are generally sessile. The use of the sharp spoon followed if necessary, by the Paquelin button will be found most available, and most frequently used. The ligature is used by some surgeons in preference to torsion in cases of pediculated tumors. The cases that may be considered as inoperable are those in which there is glandular infection, fixation of the bladder, infiltration of bladder wall and surrounding tissues.

Symphysiotomy to reach the anterior wall, recently proposed by Albarran, and Wickhoff of Vienna, seems to me a cruel operation, and, so far as I can judge, an unnecessary one.

The statistics of operations are sufficiently favorable to warrant the recommendation to operation in all classes of tumors, if done early, and in cases of non-malignant tumors at any stage but the earlier the better.

Dr. Phocas, in a paper read before the French Congress of Surgery, at Paris, in 1892, has made the following table of tumors of the bladder in children, a study of which will be found interesting, but the mortality is much greater than in adults:

TABLE B.—BLADDER TUMORS IN LITTLE GIRLS.

Index of Bibliog.	Age of Patient.	Beginning.	Functional Symptoms.	Physical Symptoms.	Nature of the Operation.	Nature of Tumor.	Results.
1 Vincent, Lyon Med., p. 264	9½ yrs.	15 days	Incontinence of urine	At the level with the incised vagina was found a tumor, with reddish to green surface, smooth and size of walnut	Division of the pedicle by thermo-cautery	Cyst	Recovery.
2 Pfenninger, Württemberg Med. Corr. Blatt, No. 23, 1834	34 mos.	.....	.....	The tumor made a projection through the urethra of the form of a strawberry	Dilatation of the canal and ligature of the tumor. After this first operation there was found by rectal touch and sound another, but removal was not attempted.	Papilloma (?)	Death from peritonitis.
3 Birkett, in Med. Chir. Transact., 1858	5 yrs.	.....	.....	Polypus coming out through urethra	Ligated with silk . . . . .	.....	The child very weak, dies.
4 Bryant, Brit. Med. Jour., May, 1879. Operation performed in 1864	3 yrs.	.....	Hematuria . . . . .	.....	Ecraseur . . . . .	.....	Recovery, preserved 8 years afterward.
5 Pfenninger, Schmidt's Jahrb., 1834, Vol. iv, p. 300	3 yrs. & 9 mos.	.....	.....	Tumor appeared at genital parts and obstructed urethra	Excision of the tumor . . . . .	.....	Death.
6 Guersant, Gaz. Hop., No. 23, 1868	22 mos.	.....	Frequent micturition	Polypus coming through urethra	Slitting up the urethra with the scissors to reach the pedicle, which was closed off by the écraseur	Sarcoma	Gangrene of the vulva. Death eighth year.
7 Geraldès, Affections Chir. des Enfants, 1869	2 yrs.	.....	.....	Polypus coming through urethra	Excision of tumor	Sarcoma	Death.
8 Smith, Brit. Med. Jour., 1872, Vol. ii, p. 64	4 yrs.	.....	.....	.....	.....	Medullary cancer.	Death.
9 Patterson, The Amer. Jour. of the Med. Sciences, April, 1882, p. 464	19 mos.	.....	Very frequent desire to urinate, and very great pain before and after. One time only a little blood in the urine	Tumor coming out at urethra	Ligature. Another operation after. Removed two or three tumors, surrounded by an infinite number of small ones . . . . .	.....	Without improvement. Death six months afterward. At the autopsy, a tumor as large as hen's egg on the posterior wall of the bladder.
10 Howard Marsh, Trans. Path. Soc.	2 yrs. 1 yr.	.....	Slight hematuria. Retention of urine	Tumor coming from vagina	Ligature. Appearance of new excrescences.	Sarcoma	Death 16 mos. after first intervention.
11 Shattock, Brit. Med. Jour., 1, 1883, p. 15 . . . . .	.....	.....	Obstruction of urethra by a prolongation of the tumor . . . . .	.....	.....	.....	Death from exhaustion.
12 De Saint-Germain, Rev. mensuelle des mal. de l'enfance, 1883, p. 43	7½ yrs. 1 mo.	.....	Incontinence of urine	Tumor coming through urethra . . . . .	.....	Myxoma	Death.
13 Owen, Malad. chir. des enfants, trad. Laurent, 1891 . . . . .	.....	.....	Severe spontaneous pains. Incontinence	At urinary meatus, polypus mass, lobulated, red, and of the size of a strawberry . . . . .	.....	Myxoma	Death.
14 Albarran, Tumors of the Bladder, 1892. Guyon et Albarran	4 yrs. 7 mos.	.....	.....	Appearance of tumor at the vulva	The urethra, dilated by the tumor, permitted seeing that the tumor, which came from vulva, was situated in the neck of the bladder. All around the neck, and disseminated through the bladder, neoplastic growths were felt. Ecraseur.	Myxoma	Death 10 days after.
15 Butlin, Lancet, 1882, 4 yrs.	4 yrs.	.....	.....	Fungous growth coming from urethra	Extirpated through urethra	Sarcoma	Rapidly returned.
16 Tewert, Billroth, 3 yrs.	3 yrs.	.....	.....	Projecting through urethra	Extracted through urethra	Sarcoma	Returned. Cystitis, Peritonitis, Pyelo-nephritis.
17 Albarran . . . . .	.....	.....	Guyon's case, without history.	Tumor having the appearance of a nasal polypos . . . . .	.....	.....	.....

TABLE C.—BLADDER TUMORS IN BOYS.—DR. PHOCAS.

Index of Bibliog.	Age.	Date of Commencement.	Principal Symptoms Observed.	Size, Place, etc.	Operation.	Nature of Tumor.	Results.
1 Deschamps, 1794, Eu-cyclop. des. Sc. Med.	12 yrs.		The patient had a stone. Tumor was recognized in course of an operation . . .		Cystotomy . . .	Fungus . . .	Recovery.
2 Gross, 1825. Quoted by Germalde	2 yrs.		Stone. Tumor found during operation . . .		Cystotomy . . .	Polypus . . .	Death. Leafy polypus tumor.
3 Stanley, Lond. Times and Gazette, July, 1852. Quoted by Wien	30 mos.		Micturition incomplete . . .	Tumor situated under orifice of ureter . .		Polypus . . .	Death.
4 Savary, Med. Times and Gazette, 1852, Vol. ii	13 mos.		Vesical symptoms, as from a stone . . .	Polypus growth implanted in mucous membrane back of urethral orifices . .		Polypus tumor . .	Death.
5 Gross, 1834, Treatise on formation of urinary calculi . . .	2 yrs.				Median cystotomy. Only superficial parts of tumor removed. A very extensive base prevented going farther in operation . .		Death in about 41 hours.
6 Gussenbauer, Archiv. f. Klin. Chir., 1875; 2nd ed., p. 411, Billroth . . .	12 yrs.		Rational symptoms of stone, which led the surgeon to an error.		At first a perineal cystotomy; then, on account of the size of the growth, a hypogastric incision . .	Myxoma . . .	Recovery 1 month after operation.
7 Charon, Bull. Acad. Med. de Belgique, 1878 . . .	3 yrs.		Symptoms of stone . . .		Bilateral cystotomy .	Myxoma . . .	Death 15 days after operation.
8 Owen, Med. Times and Gazette, 1885, Vol. ii, p. 212 . . .			Pains in the hypogastrium. Retention of urine . . .	Neck and floor of the bladder . . .	Cystotomy . . .	Sarcoma . . .	Death.
9 Ditarch, Prager Med. Woch., 1889, No. 48 . . .	21 mos.			Base of bladder . . .		Spindle-celled sarcoma . . .	Death.
10 Marshall, Encycloped. Internationale	1½ yrs.					Myxoma . . .	Death.
11 Villine, Virchow and Hirsch, 1887, Vol. i, p. 275 . . .	13 yrs.		Hematuria. Retention . . .			Myxoma . . .	Returned 2 years after. Death.
12 Albarron, 1889, M. Guyon . . .	5 yrs.		Hematuria . . .		Supra-pubic cystotomy. Extirpation by galvano-cautery . .	Polypus, taking on epithelial growth .	Returned 2 years after. Recovery.
13 Phocas	6½ yrs	15 days	Incontinence . . .	Infiltration . . .	Supra-pubic cystotomy . . .	Myxo-sarcoma . .	Death 5 mos. after operation.
14 *W.D. Spanton, Trans. Path. Soc. London, Vol. xlii, p. 218 . . .	5 yrs.		Dysuria. No hematuria . . .	Size of man's fist. Springing from prostate . . .	Supra-pubic cystotomy . . .	Myxo-sarcoma . .	Died 13 weeks after dysuria first observed.

* Added by me.—J. B. H.

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CONSUMPTION PRIMARILY A NERVE DISEASE.

Read before the Illinois State Medical Society, May, 1893.

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I have for years entertained the idea that the initial lesion or vice causing consumption is in the nervous system. In January 1880, I read a paper bearing the title "Consumption a Nerve Disease" before the Iowa State Medical Society.

Causes of all diseases may be divided into internal and external.

External causes arise from the patient's environments and are generally called exciting causes.

Internal causes are congenital or hereditary defects or vice. This is generally termed predisposing causes. Primary cause here is meant some abnormal

condition of the nervous system, which may arise from the patient's environment or heredity and from this defect arises the anatomical lesion and the pathological vice producing the symptoms which we call phthisis pulmonalis.

We wish to emphasize the thought that the force of the external and the internal causes are spent upon or aimed at the nervous system. At this particular time there may be no evidence or symptom of disease of any kind. Any one of the environmental factors may be actively operative and cause some other disease than consumption. Lying upon the damp ground may cause meningitis in one, myelitis in another, rheumatism in the third, inflammation of the lung in the fourth and consumption in the fifth. Because the environments may or may not cause consumption it cannot be stated to be the cause.

The active internal cause depends upon the external and if the patient can be excluded from the external cause then the patient is shielded or exempted from the disease, hence both the predisposing and the exciting causes are conditional, therefore I have seen fit to name the defect or lesion in the nervous system—which is always present and always antecedent and active in causing the symptoms—the primary cause of consumption. When the nervous system is thus affected consumption and not some other disease is inevitable.

I am not going to deny the existence of the bacilli tuberculosis—that they can be cultivated and in some cases by injection the disease may be produced. I wish to show that there is a something acting as a cause which antedates the introduction of the bacilli as a cause.

Since the discovery of the bacilli, too many of the

profession have jumped at the conclusion that the bacilli are the prime and only cause of phthisis. This conclusion has prevented the profession from investigating the matter as to the proper place the microbes occupy as a factor of the cause of phthisis.

If these microorganisms are in the expired air of the consumptives and the atmosphere is thus contaminated why, then, are not all of us affected?

Consumptive children are in our schools, consumptive persons are in our street cars, are on our boards of trade, in our public halls and in our churches. The sputa of consumptives are on the floors and in the spittoons of all our public places; therefore we must be breathing this contaminated air. Their sputa-soiled handkerchiefs and clothing are sent to our common laundries—with all this excessive exposure we have but one consumptive in 573 of the population of Chicago. Were this theory true, instead of wondering why so many persons die annually of phthisis, the real wonder is why so many live.

Measles and scarlet fever are said to be caused by microbes. It is an historic fact that on the Faroe Islands no measles existed from 1781 to 1846, a period of 65 years. At the expiration of which time it was introduced by a single patient. Out of a population of 7,782 only 1,500 escaped the disease. Those who escaped were mostly over sixty-five years of age and had had it in childhood. The historian does not tell us how many of the 1,500 who escaped had had the measles in childhood. He says mostly—showing that there were but few who escaped having measles. Let us take the figures as they are, and they give us the fact that 80 percent of the population were smitten with this disease. Had it been scarlet fever or small-pox the result would have been the same.

Now if consumption is of the same microbic origin, in the city of Chicago, a population of 1,250,000, instead of having, as we had last year, 2,182 deaths from consumption, we should have had just 1,000,000 deaths. There would have been but a mere handful left to tell of the devastation of the wonderful World's Fair city. To say the least, this shakes our faith in the theory that the bacillus is the primary cause of consumption. This is not denying that the microbe may be a factor, but not the prime cause.

Since the introduction of the theory of the microbes causing phthisis, the profession have been spending their energy in trying to kill the bacilli, believing when that can be done the disease will be cured. Hence the intestines have been the battle ground, and the microbes have been bombarded with sulphuretted hydrogen.

Just call to mind the amount of paper and ink that has been wasted in extolling the wonderful discovery that has cured so many cases—and according to some of these wonderful reports it has cured all. Literally blowing up their patients and stinking out the inhabitants of the home. Where are all these cured patients? "Their stammering tongues lie silent in the grave." Where are those doctors and their stink pots? The microbes echo, where!

Then came the hot air fad. These pestiferous microbes must now be burned up. The lung now becomes the battle ground. The manufacturers could not make the necessary furnaces fast enough to supply the demand. The zealous M.D. could be seen like the plumbers going along the streets with their furnaces; the one to solder and the other to roast.

The plumber is the victor and now has the entire field to himself. Where are all these patent hot air furnaces? Where are the cured? Where the doctors? You, Diogenes-like, may light a candle and search Chicago without finding one. The cured patients have quietly folded their tents and stolen away—to the great hereafter.

Then came the grand idea of attacking the little but numerous demons with sodium and gold by means of the hypodermic syringe, and thus attack the microbes in the blood and other fluids of the body, and this too has been reported as a grand success, and yet Father Time had written on the historic page of 1892, in Chicago 2,182 patients have died of consumption in spite of the little syringe loaded with sodium and gold.

The failure of all these well aimed (according to the theory) and thoroughly executed plans, should open the eyes of the profession, and at least shake their confidence in the theory that killing the bacilli tuberculosis is going to cure their consumptive patients.

Not breaking new ground in physiology nor pathology, but simply referring to well known principles, it will not be necessary to load down this paper with references to authorities. Many mathematical principles and historic facts are so well understood that referring to authorities would weaken rather than strengthen a paper, besides insulting the intelligence of the reader or listener.

Correlation of nervous diseases is well understood and accepted by the profession.

Wetting the bed in childhood may develop, as the child grows, into spermatorrhœa.

An hysterical woman may beget an epileptic or a choreic child.

An epileptic parent may beget an idiot, or a child that may become insane or consumptive.

A neurotic parent may beget a morally depraved child that may spend the major part of his life in jail, penitentiary, or die on the gallows. I have seen from a consumptive mother an epileptic daughter, a morally depraved son, and another daughter who died of consumption.

A large proportion of the insane die of pulmonary disease. Among these the insanity gets better as the phthisis gets worse, and *vice versa*.

Severe exposure is a fruitful cause of myelitis, meningitis, neuritis, as well as consumption.

Injuries, especially of the hands and feet, frequently produce tetanus. I have known it to cause phthisis.

These examples suffice to show what is meant by correlation of nervous diseases, and at the same time show that tuberculosis may be correlated with nervous diseases. This proves that there is an intimate relation between consumption and nervous diseases.

Nutrition is under the control of the nervous system, and the nerves whose function is to govern nutrition we call trophic nerves. Consumption is a wasting disease. The body is not nourished and finally succumbs to destructive metamorphosis. The logical conclusion is that consumption is a disease of the trophic nerves.

Self preservation is a fundamental law of nature, not simply in the animal as a whole, but in the tissues and even down to the minutest cell of which the body is composed. Nature is able to resist a certain amount of destructive influences. The mechanic's

hands become hard by honest labor, and thus resist a great amount of friction. That is not saying that a mechanic's hands can not be blistered by friction and that slivers can not penetrate them.

The blacksmith can handle hot iron—so hot that it would burn others. Yet blacksmiths may have burned hands. Men chew and smoke tobacco to a certain extent and live to a good old age, because they do not go beyond the limits of natural ability to resist these baneful influences. These men may step over the line and suffer from the effects of the nicotine.

Resistance or endurance is a known physical principle, and may be natural or acquired. The pigeon can take enormous quantities of opium. The hog will get fat upon arsenic. Some persons never have measles or scarlet fever. These are examples of natural resistance, while the taking alcohol, opium, tobacco, etc., are acquired.

Dr. Paget had worked for years upon the cadaver and paid no attention to cuts upon his fingers or scratches on his hands, because he had an acquired resistance to the virus, microbes, ptomaines, etc., but in later life he abandoned his work among the dead, and in after years he attempted a post-mortem and nearly lost his life: was very sick for a long time with blood poisoning. This shows that an acquired resistance may be lost.

Resistance is positive; susceptibility is negative. Destroy resistance and you establish susceptibility. A puerperal woman is susceptible to scarlet fever and erysipelas. The puerperal state has destroyed the resistance.

Nature furnishes scavengers in the form of flies, crows, vultures and jackals; the carnivorous animals to keep in check the too rapid increase of other animals which would overrun nature and thus bring a total destruction of all living things. The cat checks the mice, the wolf keeps down the rabbits, the hawk prevent the too rapid increase of the pigeons, the sparrow saves our shade trees by devouring the destructive worms.

The leucocytes do this work for us in our bodies. Your catgut ligatures are removed by the carnivorous leucocytes. A sliver in the flesh causes congestion, brings a whole army of leucocytes in the vicinity, and they loosen the sliver by enlarging the cavity in which it is lodged. These faithful leucocytes as sentinels attack the microbes and eat them, and thus save us from the effect of the bacilli tuberculosis.

While the trophic nerves are normal, producing or recruiting and keeping up the ranks of these leucocytes, we are saved from consumption. The microbes are the rats while the leucocytes are the ferrets, and while the ferrets are healthy, vigorous and sufficiently numerous, we have a resistance to consumption.

While the nervous system is normal the blood making process goes on, the various functions of the body are correctly performed. In this condition a person breathes the air from the lungs of a consumptive patient. The bacilli are few in number and the healthy person receiving the microbes has an active and vigorous army of leucocytes, and the battle is sharp but decisive. The leucocytes are the victors. Let us suppose a wife has been watching and caring for a consumptive husband for a long time, depressed mentally, anxiety wrought up to the highest pitch, there has been loss of sleep. Here is a chain of causes which will break down the nervous system

enough to cause serious nervous and mental disease. There is a loss of appetite, impaired digestion and wasting of all the tissues. In this condition she is taking in the air which is loaded with the bacilli tuberculosis. The leucocytes are greatly reduced in numbers and strength. In the battle the bacilli are the victors. They multiply rapidly and reign supreme until the death of the patient.

There was a point in this patient's history had she been placed in an atmosphere destitute of the bacilli and before resistance had been destroyed, when the nerve energy would have been recuperated, appetite, digestion and nutrition would have been restored and the patient might have been saved.

Confinement in prison causes great mental depression and worry, and this causes the majority of the inmates of prisons to die of consumption.

It is reported that two-thirds of the prisoners at Joliet have consumption, and nearly all the deaths that occur in that institution are of phthisis. Living in dark, damp houses will do the same.

If we ever expect to cure consumption we must do something more than fight microorganisms, which at best is but cutting off the tops of the Canada thistles and leaving the roots in the ground.

We are recognizing to-day the fact that the nervous system with its fibers going to every organ, every tissue and every cell in the body, governing and controlling every action and every function in the grand and wonderful structure of the human body, when it is attacked by disease digestion fails, absorption fails, assimilation fails, and the very citadel of life fails. The King of Terrors rides triumphant through all and over all.

EXPERIENCES WITH SCABIES.

Read before the Section of Dermatology and Syphilography, at the Forty-third Annual Meeting of the American Medical Association, held in Detroit, Mich., June, 1892.

BY ELISHA CHENERY, M.D.,

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Solong as scabies remains the important disease that it is—actively contagious, at times difficult of diagnosis and also of treatment, being often dovetailed into the community where it is found—so long is it a subject worthy of our consideration. What I have to relate bears upon the foregoing statements.

Some years ago I entered upon a country practice where there had been a well-trained and able physician. How he missed certain cases of the itch I do not know, unless it were from the fact that they occurred in the foremost family in town, who were unwilling to admit that they could have the itch. Said the mother to me, "I thought it was poor folks that had the itch." I replied that the mites liked rich folks just as well, only their more liberal use of soap was in the parasite's way. In this family the father, who was at home but little, escaped. The mother, the grandmother, and four daughters were all affected. The irritation on the grandmother was very great, producing blebs, boils and abscesses. After a little, I succeeded in prevailing on them to use the usual remedies, and with success. The grandmother's case alone would have been difficult of diagnosis on account of its complications. As a whole they demonstrated that scabies is no respecter of persons, and that under certain circumstances, the disease places the physician at a disadvantage to cope with it.

A man, lately from the war, was greatly annoyed

by an itchy condition of the skin, yet showing but little eruption. He went to the ablest physician in the regions, who pronounced the disease the *army wildfire*, and prescribed for it. The remedies not putting the fire out, I was summoned to the house. When the other members of the family were brought up, there was no difficulty in making out what the trouble was with him. Insecticides were prescribed with the usual results. The first physician saw only the father and therefore did not have the opportunity that I had, moreover it was at the time when lichen was very prevalent, and that would not yield as readily to remedies as the itch.

The contagiousness of scabies is eminently illustrated in the following: A clergyman whose family had grown up and gone from home, feeling lonely, went to an eleemosynary institution and took out a girl to racket in his house. This clergyman had drifted into the tide with other Methodist ministers, and gave his influence in favor of the fashionable New England fad, homœopathy, and had the impudence to call me a fool because I would not swear on Humphrey's specifics. Such people are self-deceived and are sooner or later likely to betray their ignorant conceits. It was so in his case. The orphan he brought home had an eruption which he assumed to be the scrofula which he plied with his favorite specifics. Neighbors visited his house and caressed the child. He carried the child with him into nearly all the families in his parish where it was petted and caressed. At length the leading families required my services for the itch, referring the cause to that child. And it was no small setback he received when he found, that through his ignorance of medicine, he had spread the itch throughout his parish, nor was it difficult for me to show whose foot the fool's shoe fitted. Ministers' mouths should not be open concerning medicine when the highest they can swear by is by Humphrey's specifics.

When I was a student with my preceptor in this city, forty years ago, we had a pretty large swing through the North End, he being dispensary physician to a district in that part of the city. At that time Dr. Silas Durkee was giving instruction to a private class on dermatology, and requested my preceptor and myself to let him know if we found any cases of scabies. He said it was one of the rarest skin affections in the city. We did not find him a case, but had invitation to his office to see one which he had elsewhere found. It was in a girl of sixteen, had lasted seven years, and was the only case of the *seven year itch* I ever saw.

Since that time there has been a great change, with respect to this disease in this city, and the various dispensaries are annoyed by the frequency of the cases of it. I have been connected with the North End work for the last year or two and have been particularly impressed with its prevalence among the Italian and Jewish peddlers. They seem not to have a consciousness of the nuisance they are to the community, and that they are spreading the parasite into well-to-do families by their trade; for they go from house to house, undoing and exhibiting their cloth and other wares for the people to handle, when they are themselves alive with the pest.

In the country there is a larger degree of moral sense and the physicians are fully capable of handling the disease. In the city it is otherwise. Though he cure a few cases he can not usually get to the

depth of the cause, in the rags and squalor in which the poorer people live. Hence there is need of organized action. The boards of health are, as a rule, the only competent parties to ferret out and destroy the parasite among the foreign people and in the densely crowded quarters; and this should be an element in their business. Scabies should be put among the diseases with which they deal, should be reported to them the same as measles are, and they should go at it with disinfectants as they do at other infectious diseases. Nothing short of this can rid our densely crowded quarters of the infecting pest. And moreover they should add to this, thorough disinfection, a critical examination of immigrants, and prevent the landing of any who are subject to the disease, till they have gone through the proper course for cleansing. The important nature of the affection demands this action; and unless it be done our immigrant cities must be and remain hot-beds of infection of this kind to our own and better people; for it is impossible that any private physicians can do this work.

MYXOSPORIDIA IN THE COMMON TOAD WITH PRELIMINARY OBSERVATIONS ON TWO CHROMOPHILE SUBSTANCES IN THEIR SPORES.

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The myxosporidia belong to the class sporozoa (Leuckart), a sub-division of the sub-kingdom protozoa. The sporozoa are unicellular parasitic organisms, obtaining their nourishment by the absorption of the liquids of their host. This class of parasites is particularly interesting to the pathologist at the present time, because of their supposed causative relation to carcinoma and other neoplasms. The classification of the sporozoa lately adopted by Braun is that of Mingazzini, who divides them into four groups:—1. Gregarinida (including coccidia). 2. Myxosporidia. 3. Sarcosporidia (including microsporidia). 4. Haemosporidia. From this it will be seen that the myxosporidia form a separate group of the sporozoa, having been set aside in this manner because of certain characteristics peculiar to themselves; and in this grouping, the principal feature which distinguishes the myxosporidia from other sporozoa, is the presence of thread-like flagellæ in their spores.

The life history of most of the sporozoa is still obscure, though the labors of many investigators in this important field are gradually widening our knowledge. A very striking peculiarity in the biology of these lowly animal forms is the complexity of their development. In the development of a species of the group gregarinida, for instance, there are described no less than the *seven stages* in its metamorphosis. In the so-called "pseudo-navicella" stage, and in the "crescentic germ" stage, in the development of the sporozoa, protoplasmic particles are produced by the segmentation which are of extreme minuteness; and in this condition their examination, even with the highest power of the microscope, is extremely difficult. This difficulty of observation is the case where these organisms are studied free from the tissues of the host, and naturally, it must

be much increased when these bodies lie in the tissue elements. Without going into a discussion of the sporozoa as a whole, we may refer the interested reader to the work of Leuckart; and to the reviews of Wright, Kruse, Lindner, Braun; and to the special paper quoted in these works.

The myxosporidia, or psorosperms as they were formerly called (Leuckart, Lieberkühn), are parasitic throughout a large range of the animal kingdom. Korotneff describes myxosporidia in a species of bryozoa. Thélohan, Henneguy, Garbini, and others, found these parasites in a variety of crustaceans, both inland and marine. In amphibia the myxosporidia have been studied by Leuckart, Lieberkühn, Lutz, and others. The "psorosperm disease" of a large variety of fish has long been recognized, and the parasite described. In these animals the parasites have been found both on the external surface, and in the various organs of their host, and a variety of lesions have been produced by their agency. In many instances the disease was epidemic in certain localities, leading to the destruction of large numbers of the affected animals. The medical literature of the past few years is full of instances of psorospermic disease, a number of pathological conditions, particularly of the skin, being charged to these organisms.

The structure of the myxosporidia is widely different in the various species, and in the developmental stages of the same species, so that the descriptions of the various investigators differ considerably. As a rule, we find the organism described as existing in two conditions, the adult or amœboid form, and the spore form. In the adult condition the myxosporid exists in the form of a granular, protoplasmic mass, with a well-defined ectosarc and endosarc, and exhibiting sluggish amœboid movements. In this mature condition it often attains a considerable size. The spore stage, however, seems to be the condition under which the parasite is most commonly found, and here occur the variations which distinguish the species. The spores of the myxosporidia differ in size, shape, and contents. They are surrounded by a capsule measuring $8\ \mu$ to $20\ \mu$, resistant to re-agents, and often presenting a well defined striation.

The capsule usually consists of two valves joined together at the middle of the spore, the line of union being readily visible. The shape of the capsule may be spherical, oval, cylindrical, spindle-shaped or lens-shaped. Within the capsule are found the pole corpuscles ("Pölkörperchen," "Polkapseln," "polar bodies," etc.), varying in number with different species from two to eight. These pole corpuscles are usually oval, or pear-shaped, and highly refractive; and are so named because they lie at one or both poles of the spore. We know nothing about the ultimate structure of these bodies. The pole corpuscles lie in a vacuole in the spore, and aside from them, the spore contains a plasmatic (protoplasmic (?)) mass, which may be aggregated at one pole of the capsule, the corpuscles lying at the other; or the plasmatic body may lie on one side of the oval spore, with a pole corpuscle at each pole of the long axis. Within the plasmatic substance there occurs one to four sapraninophile bodies (Bütschli), which have been regarded as nuclei by Thélohan. Aside from these structures, the spores of the myxosporidia present the peculiar projectile threads by which the group is distinguished from other spor-

ozoa. Under ordinary conditions, the threads are not visible, being transparent and contained within the spore. Balbiani and Schneider maintain that the threads are rolled within the pole corpuscles, from which they are ejected. Upon the application of certain reagents, as hot water, caustic alkalies, iodine, or glycerine, the threads or flagellæ become visible, and may be traced from the exterior of the spore to the pole corpuscle within the capsule. The significance of these threads is not clear. They have been regarded as sperm cilia (Balbiani); as organs of fixation (Leuckart); or as weapons of offense, identical with the stinging threads of certain hydrozoa and infusoria.

The germination of the spores of myxosporidia, is not fully known. Lieberkühn and Balbiani have described a splitting of the capsule, and a wandering out of an amœboid germ (the plasmatic mass), in the psorosperm of the pike, and they call this a phenomenon of development. This interpretation requires confirmation, however. Henneguy and Thélohan have observed a process of mitosis of the plasmatic particles of a large myxosporid infesting the shrimp (*Crangnon vulgaris*); these masses eventually dividing into eight nucleated particles, each of which formed a new spore. The stages by which the spore arrives at the adult amœboid condition are not known.

* * * * *

The case of myxosporidia infection which came under the author's notice, occurred in a large female toad (*Bufo lentiginosus* Shaw), which had been kept in confinement in the laboratory for several months. The animal had been sent from the country early in the month of September, with a lot of frogs, and had been left in a tub along with a couple dozen frogs. These frogs showed no unusual mortality, and were gradually consumed in the biological class, until only the toad remained in the tub. About the middle of November I happened into the laboratory one morning, and noticed the toad lying on its back, apparently dead. Upon removing it and watching carefully, a faint flutter of the pleural wall over the heart could be detected; but no signs of breathing. Previous to this time, it had been remarked that the animal was gradually increasing in size, and on the occasion of the last examination, this feature was particularly noticeable. The animal being a large specimen of its kind, the increase in size had been unconsciously ascribed to development of ovarian ova.

Being desirous of obtaining a set of histological specimens from this species for comparative study, I hastily proceeded to open the pleuro-peritoneal cavity of the dying animal, and obtain some tissue for fixation, before death had ensued. My friend, Mr. Champin, was present during the dissection of the toad, and also took specimens of the various organs for histological study.

Upon opening the abdomen, a large quantity of clear, straw-colored, serous fluid escaped, both from the abdominal cavity, and from the sub-cutaneous lymph sinus. The extreme size of the trunk of the animal was, in large part, due to the accumulation of this fluid. The lymph sinuses of the limbs were also distended with the fluid to an unusual degree. The ovaries were moderately developed, but not to an extent to account for the extreme size of the abdomen. As a matter of fact, the animal had suffered

from a *dropsical effusion* which had been gradually increasing to the time of death. Nothing unusual was noticed about the macroscopic appearance of the organs, save that the urinary bladder was largely distended with fluid, and that the kidneys were enlarged to about twice their normal size. The fresh tissue was fixed in Flemming's solution, and in absolute alcohol, a piece of each separate organ being dropped in each of the solutions. The tissue thus fixed was obtained from all the organs of the pleuro-peritoneal cavity, together with the tongue, brain, sciatic nerve, and a piece of the abdominal wall. Mr. Champlin was first to cut his tissue, and to observe the peculiar organisms in the kidney. He cut a piece of alcohol fixed kidney tissue, stained it in Pfitzner's safranin, and upon examination noticed the brilliant red bodies in the tubules, which he suspected to be sporozoa, since we were both anxiously looking for these organisms at that time. Upon examination of the section, I agreed with him as to the sporozoan nature of the bodies, but could not assign them to their biological position. In fact, it was only after a study of the literature upon the subject, and a study of the organisms with various reagents, undertaken at intervals during several months, that I was enabled to decide upon the nature of the parasites. By a fortunate coincidence, I hit upon the work of Lutz, through the aid of my colleague, Dr. Mitchell, and thus had the doubts as to the nature of our organisms set aside. Aside from the fact that I could get no one to identify the myxosporidia, I was more tardy in reaching a decision myself, because of the remarkable diversity of results obtained with the variety of staining reagents. Now that the character of the organism is clear, the diverse effects of reagents on the spores may be turned to valuable account, as I hope to show in part in this communication, and more fully on a subsequent occasion.

Since the discovery of Mr. Champlin, I have made a large number of sections of the kidney tissue, both from alcoholic pieces, and from those fixed in Flemming's solution, and in every section multitudes of myxosporidia were found. Although I have made sections of other organs, I have succeeded in finding the parasites only in one other situation, viz., in the urinary bladder. Hence the conclusion that we had in this case, a myxosporidia infection of the *urinary organs* of the toad. The organisms were almost invariably present in larger or smaller groups, in the lumen of the urinary tubules of the kidney, as is shown in the micro photograph, (Fig 1.). *I never found them in the substance of the epithelial cells, nor could nuclear metamorphoses be observed in the kidney cells, such as are described with intra-cellular sporozoa ("Karyophagi").*

Occasionally the organisms appeared among the blood corpuscles in a large vessel, though it is impossible to say that their presence in this situation may not have been due to some displacement during the manipulation of the object. They were never found in the glomeruli. In the urinary bladder the parasites were found sparingly present in the folds of the collapsed organ, always on the interior, and not imbedded in the bladder tissue. Aside from the myxosporidia, the kidney was found to be the seat of an extensive invasion by a variety of *bacteria*.

As to the pathogenic rôle of the myxosporidia in this case, there can scarcely be a doubt but that they were the direct factors in the production of the

pathological changes leading to the death of the host. A glance at the micro-photograph, Fig. 1, will convince one of the extremely large number of these foreign bodies in the kidney tubules, since the photograph was made from a very thin section, and is only a fair representation of the findings in all of the sections examined. In fact, the tubules of both kidneys were filled with the parasites; and it is evident that the mere mechanical effect of this foreign material in the tubules must have led to an obstruction of the secretory functions of the organ, and, as a remote result, to the ascites and general œdema. Undoubtedly, the presence of large numbers of bacteria in the already overburdened kidney was potent in hastening the fatal termination; but these vegetable microorganisms must be regarded as the elements of a secondary infection. It is not difficult to conceive that the diseased kidney, with its damaged secretory function, would furnish an inviting focus for bacterial invasion; and particularly since the route from the exterior is such a direct one in those animals in which the urinary secretions empty into a cloaca. As to the origin of the myxosporidia infection, we can only conjecture that it must have occurred by way of the cloaca to the bladder, and from here the parasites ascended the urinary passages, eventually lodging in the kidneys.

* * * * *

For the purpose of studying the myxosporidia in detail, the kidney tissue was imbedded in xylol-paraffin, cut in thin sections which were fixed on the slide by the water-albumen method, and then stained with a variety of dyes. For the purposes of this study, the tissue fixed in Flemming's solution was not suitable. As intimated above, the effects produced by the variety of staining agents were remarkable in diversity, and it would far exceed the pretension of the present communication to enter into a full discussion of this most important subject. The author hopes, however, to give a more detailed description of the micro-technical studies upon these organisms in the near future, since they seem to throw some light on the perplexing question of the carcinoma parasite. For the present, a brief description of the morphology of these particular sporozoa, and a hint as to the two chromatic substances in their spores, is all that can be given. To adequately represent the varying color reactions, some very perfect chromolithographic plates are required, and these can not be prepared in the limited time at disposal.

The organisms found in the kidney and bladder of this toad I have designated myxosporidia, because of their resemblance to the organism described by Lutz in the liver and gall bladder of a Brazilian toad, and because, upon appropriate staining, I was able to demonstrate the projectile threads which characterize this group of sporozoa. In my specimens I was able to demonstrate only the *spores* of this parasite, and in none of the preparations could I discern the amœba-like myxosporid which is said to represent the mature organism. In this respect my observations agree with those of Lutz, Henneguy and Thélohan, and others. It is probable that, in this case, the parasite did not reach its adult condition in its batrachian host; but here only passed one stage of its evolution; that is, the spore stage.

The spores were surrounded by a well defined capsule of a slightly oval shape, measuring about 6 μ and 8 μ respectively in the short and long diam-

eters. The capsule appeared nearly transparent with certain stains; but in sections stained with gentian violet, after Gram's method, the capsules retained the violet color, and exhibited a well defined striation. The striae on the capsule usually proceeded from side to side of the spore, parallel with each other; but with a somewhat indefinite, wave-like deviation (Fig. 4, a, b, c.). In the case of the empty fragments of capsules, which were frequently found, it was possible to see that the striation was the optical expression of spiral bands of less refractive material, winding about the spore (Fig. 4, c), as Thélohan has pointed out. Aside from these striae, a well defined wider band surrounded the middle of the spore, passing from side to side. This band was particularly well seen at the edges of the capsule, where a slight prominence marked its presence as seen in profile (Fig. 4, b). The significance of this heavier band became clear when it was found that the capsule was *bi-valvular*; that is, a complete capsule consisted of two symmetrical halves joined together, the heavy band marking the junction of these two valves. I was never able to demonstrate a loosened band, apparently sprung from the uniting edges of the spore valves, after the manner of a loosened barrel hoop, as has been described by Lutz. Furthermore, it may be noted that, in respect to capsules, the myxosporidia here described differed from the organisms of Lutz, in that the line of union between the valves of the capsule was at right angles with the long axis of the spore; while in those of Lutz, the line of union between the valves crossed the long axis of the spore at an angle of 45° .

Within the capsule three structures were readily visible—the pole corpuscles, vacuole, and the plasmatic mass. In sections stained with alcoholic safranin (Pitzner's), the capsule was unstained; but the pole corpuscles were strikingly prominent on account of their brilliant red color; and the plasmatic mass was stained a light pinkish hue.

The pole corpuscles were two in number, lying side by side, often in contact, at one side of the spore, a little nearer one side wall than the other. On one side of the pole corpuscles was a clear space or vacuole; while on the opposite side lay the plasmatic mass (Figs. 2 and 3). In size, the polar corpuscles measured from $3\ \mu$ to $3\frac{1}{2}\ \mu$ on an average. With safranin they stained a homogeneous red color, showing no structure. In unstained specimens these bodies were glistening and highly refractive. The situation of these polar corpuscles on the side of the spore is peculiar, and in this respect our myxosporidia differ from those thus far described. The usual situation of these structures is at one pole of the long axis of the spore, in groups of two or more. In the species described by Lutz, the pole corpuscles were situated one at each pole of the long axis of the spore; and in his specimens, the projectile threads proceeded from the pole corpuscles, parallel with the long axis; that is, one thread appeared at each pole of the long axis of the oval spore.

Occasionally, only a single polar corpuscle could be found in a spore, but this may be explained, in part at least, on the supposition that a spore had been severed by the microtome knife, leaving only a part of the capsule, and one corpuscle. In safranin preparations it was frequently possible to observe the brilliant red pole corpuscles lying outside of the

spore capsules, in the tissue of the kidney. Whether these free lying corpuscles had voluntarily escaped from their capsules, or whether this appearance was due to accident in handling the section, is of course, impossible to assert positively. I am of the opinion, however, that the migration of the pole corpuscles is a natural phenomenon in these organisms, and that it possibly has as much, or more weight in the life history, than the migration of the plasmatic mass usually described. The presence of many empty capsules in the sections, would lend weight to the view of the expulsion of the contents of the spore, and in Fig. 4, a, I have represented a capsule with a single spore, which appeared to be in the act of escaping through a rent in the capsule.

The plasmatic mass lay within the capsule, between the pole corpuscles and the side wall of the spore. The size and shape of this structure varied considerably; sometimes the mass was so extensive as to fill all the space existing between the polar corpuscles and the adjoining side of the spore; in this condition no evidence of a division of the plasmatic mass could be discerned. In other spores, the mass was less extensive, sometimes indeed, appearing very small and shrunken. In the cases in which this substance was less in amount, a well defined segmentation was frequently noted; the line of division extending through the middle of the mass, each half of the divided mass enveloping a pole corpuscle in the form of a well defined crescent. The appearance of the plasmatic mass, and an indication of the double crescents, may be seen in Figs. 2 and 3. When examined by high powers (Leitz obj. $\frac{1}{2}$ inch), the plasmatic mass exhibited indications of a delicately granular condition, in specimens stained by the anilin dyes. Aside from this, no indication of structure could be observed in the plasmatic bodies, and such a structure as a *nucleus*, or evidence of nuclear contents, was invariably absent. I could not even demonstrate the micrococci-like particles in the plasmatic body, as have been described by Lutz; nor the safranophile particles of Bütschli. In regard to the absence of nuclear structures in these spores, my observations confirm those of Lutz.

On the side of the pole corpuscles opposite the plasmatic body, the vacuole occurred. This space was unstained in specimens in which the excess of stain had been washed out; but in over-stained spores the vacuole retained the dye, though not so strongly as the pole corpuscles and the plasmatic body.

The projectile threads were best seen in a section stained with Babes' anilin-water safranin, where they were very prominent because of their yellowish color. In many other specimens they could be outlined by careful examination, though their unstained condition made their recognition difficult. Even in the most favorable specimen, it was found that the threads could not be detected in the majority of the spores; and in those spores presenting these curious structures there was considerable difference in their length; often appearing curled or rolled at the end, as though only partly unwound. When fully projected, these threads were of surprising length, often six or eight times the length of the spore, and extending far into the surrounding tissues. The length of a fully extended pair of threads is shown in Fig. 3, which is a camera lucida tracing of the spore with its projectile threads, and illustrates strikingly

the remarkable extent of these processes. It would appear that the length of these threads is extreme; since the only other observation on this point is that of Lutz, in which he gives the length of the threads in his myxosporidia as four to five times that of the spore. Since these structures could be demonstrated in the sections of hardened tissue, by appropriate staining, it is, of course, evident that they must have been thrown out from the spores before the organisms were killed by the alcohol employed in fixing; and that the length of the threads would then depend upon the extent to which they had been projected. As has been previously stated, the generally accepted view is that the projectile threads are contained in the pole corpuscles, rolled in the form of a spiral, and that they are ejected by the living spore upon the application of certain reagents, as alkalis, glycerine, etc. Of course, in my own specimens, I was unable to verify this last statement, since the organisms were all killed before examination. In the preparation showing the threads most plainly; i. e., the one stained with Babes' safranin, I could often see the indication of the thread as a well marked protuberance on the pole corpuscle, and in other spores it seemed as though the rolled thread could be dimly seen within the corpuscle. It was noted, however, that no difference in the intensity of the stain could be observed in the pole corpuscles with or without the projected threads.

The threads when visible, were always two in number, one originating at each pole corpuscle, and passing to the exterior through the side of the capsule containing the vacuole; and at right angles to the long axis of the spore. They could be readily traced within the spore and to the surface of the pole corpuscle, in the preparation stained in Babes' anilin-water safranin. Fig. 3 is made from this preparation, and shows the origin of the threads at the periphery of the pole corpuscles. In regard to the origin and direction of the projectile threads, the myxosporidia in this case differ from those ordinarily described; and from the organism of Lutz. In spores with pole corpuscles aggregated at one pole of the capsule the threads are naturally found only at this one pole, projected parallel with the long axis of the spore. In the species described by Lutz, the threads could be traced to the two corpuscles, one lying at each pole of the spore; but here the threads were again projected from the ends of the oval spore; that is, parallel with the long axis. The projection of the threads through the lateral wall of an oval spore at right angles with the long axis is, so far as the literature at my disposal permits me to judge, a unique condition, and serves still further to stamp these myxosporidia as a very distinct species.

* * * * *

In the foregoing description, it has been several times remarked that the organisms were carried through varying micro-technical processes, and that, as a result of this study, a number of interesting facts were elicited. This was particularly true with respect to the action of the different staining agents employed; but of these results, only one will be here described; viz., the effects of certain *double stains* upon the contents of the spores of these myxosporidia.

Ordinarily, the varying effect of two staining agents on the same structure, or organisms, would be of very little interest; for the operation of the so-

called "double stains" in selecting certain portions of an object, has long been known to microscopists. Within the last few years, however, we have learned to attach a considerable significance to the chromophile properties of animal and vegetable tissue, particularly in the nucleus; and in directing our attention to this subject, the works of Ogata, Luckjanow, Steinhaus, Macallum, Auerbach, Watasé, and others, have been prominent. Particularly important, in this direction, is the work inaugurated by Auerbach, who has distinguished, according to their chromophile properties, two kinds of nuclear substances; viz., the blue staining or *cyanophile*, and the red staining or *erythrophile*. In this selective property, a number of staining substances are mentioned and classified by Auerbach; but it is evident that the property belongs to a much larger class of dyes than those detailed by this authority. For instance, Watasé has employed, in his studies, several new dyes, principal among which are the anilins designated cyanine, for demonstrating the cyanophilous or blue substance; and erythrosine and chromotrop, for staining the red or erythrophilous substance. Watasé has also employed the Biondi-Heidenhain triple stain, and finds it possible to develop the two chromatic substances in suitable objects, with this reagent. Noeggerath has found Russell's staining combination of fuchsin and iodine green, and Sjöbring's eosin and hematoxylin method, to be selective upon the two nuclear substances.

The significance of this chromophilous phenomenon has been most fully elaborated by Auerbach, who maintains that it demonstrates the *sexuality* of the nuclear chromatin. Auerbach has found, and many careful investigators have corroborated his discoveries, that the purely male chromatin (the head of the spermatozoon) is always cyanophilous, and that the purely female chromatin (the chromatin of the germinal vesicle, and the germinal spots of the ovum) is always erythrophilous. Luckjanow and Watasé have observed the development of these chromophilous properties in spermatogenesis, and their decline during fertilization. In the cells produced by a union of these sexual substances; or, in other words, in the segmentation nucleus, and the nuclei of the cells of the resulting organism, the two substances would be equally distributed; and such nuclei would not exhibit a marked preponderance of either cyanophile or erythrophile substance.

Whether these differences in staining reactions may be carried to the extent of indicating the *sexuality* of chromatin, as Auerbach maintains, is impossible to say at present. The views of Auerbach have, naturally, not passed unchallenged, and it must remain for future research to indicate the exact significance of these facts. However, it is clear that the substance of the nucleus, and particularly the nuclei of the sex elements, exhibit marked preference to certain dyes, and this would indicate, first of all, a difference in the *micro-chemical properties of chromatin*.

Investigation along this line must be profitable in advancing our knowledge of nuclea structure. The line of research inaugurated by Auerbach has been introduced into pathology by Noeggerath, in his studies on the development of carcinoma; and he has found much variation in the proportion of the two chromophile substances in carcinoma cells; and upon this ground he tentatively advances an hypothesis to explain the origin of the disease.

In examining the sections of the infected kidney, stained with carbolie fuchsin and carbolie iodine green (Russell's method), I was surprised to find, in the spores of the myxosporidia, a difference in the staining reactions of the contained structures. It was seen, in many of the spores, that the *pole corpuscles* stained a brilliant red, while the *plasmatic mass* stained a light green. This difference in the chromophile reactions of the two structures was much more marked in certain spores, than in others. The pole corpuscles uniformly stained red; but the plasmatic mass varied in color from violet to a well defined green. It seems that this difference depended, in large part, upon the stage of development of the plasmatic mass. In cases in which the mass was large and unsegmented, and occupying a large part of the capsule, the green stain was less clearly defined; but when the plasma was more condensed, and divided into the two crescents which were closely applied to the surface of the pole corpuscles, it stained a well marked green. In interpreting this curious chromophile phenomenon in the terms proposed by Auerbach, we may say that, in the spores of the species of myxosporidia we have described, the *pole corpuscles* are erythrophilous and the *plasmatic crescents* are cyanophilous. Whether this signifies a sexual difference in the contents of a spore capsule, can not be positively asserted at this time. In fact, at a time in which we know comparatively so little about the life history of this class of microorganisms, it would be premature to analyze the meaning of this observation. It may be true, indeed, that the chromatic reactions described only indicate a *micro-chemical* difference in the substance of the pole corpuscles and the plasmatic mass; and that either one or the other may be the true sexual element. Viewed in any light, the fact remains that the observation is an important one, directing, as it does, our attention into a comparatively new field of study upon these perplexing organisms; and indicating, as it does, the great importance of these micro-chemical staining reactions in all lines of biological and pathological inquiry. To fully apprehend the import of this observation, the study must be extended over numerous species of myxosporidia, in varying stages of development; and both in fresh and hardened preparations. Nor must the work be confined to the myxosporidia, or even the sporozoa alone; but be extended to other unicellular organisms whose size renders them more favorable objects, and whose life history is better known. Manifestly, this line of investigation will be equally fruitful in biology and pathology; for many of the protozoa are recognized as pathogenic in a number of diseases. Particularly is this true at the present time, with regard to carcinoma, when so much weight hangs upon the positive demonstration of a sporozoan parasite. The relation of the views of Auerbach to carcinoma development has been already indicated by Noeggerath in a certain direction, and lately Adamkiewicz has carried the observations of Noeggerath to still another interpretation: viz., that of the possibility of an existence of the two separate chromophile substances in unicellular parasites.

Several staining combinations were tried on the spores of these myxosporidia, in an endeavor to further demonstrate the chromophile substances. The Biondi-Heidenhain triple stain, and Watasé's com-

bination of cyanine and chromotrop,¹ failed to stain the spores in a characteristic manner; that is, the structures of the spore were not differentiated by the dyes. I do not consider this fact as indicating a non-selective tendency of the pole corpuscle and plasmatic mass for the dyes; but that it is rather due to a failure of the stain to penetrate the capsule. In sections first stained with Pfitzner's alcoholic safranin, and then stained with aqueous methyl blue, rapidly washed with alcohol, and cleared in xylol, the differentiation of the cyanophilous plasmatic mass and the erythrophilous pole corpuscles was most striking. This success of fuchsin and iodine green on the one hand, and safranin and methyl blue on the other, in exerting their selective properties, seems to be due solely to their more powerful staining properties, which permits them to penetrate the somewhat resistant capsule.

The observations herein presented are as follows:

1. An infection of the urinary bladder and kidneys of a toad (*Bufo lentiginosus*, Shaw), with the spores of a peculiar species of myxosporidia.

2. The parasites were doubtless the direct factor in bringing the animal to its dying condition; mechanically blocking the kidney tubules; interfering with the secretory function of these organs; thus favoring the existing general oedema; and preparing the way for the secondary infection by various bacteria.

3. The organisms differed from those usually described. 1st. With regard to the line of union between the valves of the spore; which divided the capsule in two symmetrical halves, and which intersected the long axis of the spore at right angles. 2nd. With regard to the pole corpuscles; which were situated near one side of the spore. 3rd. With regard to the projectile threads; their extreme length; and their penetration through the side wall of the capsule, at right angles to the long axis.

4. The pole corpuscles and the plasmatic crescents exhibited different chromophile properties. The pole corpuscles were strongly erythrophilous; the plasmatic crescents were cyanophilous. This erythrophilous property of the pole corpuscles was more constant than the marked cyanophilous property of the plasmatic mass; which seemed to vary somewhat in different stages of development.

EXPLANATION OF PLATE.

FIG. 1. From a micro-photograph of a section of kidney stained with fuchsin and iodine green, made with Leitz obj. No. 3, ocular 4, showing at *a*, and in many other parts of the photograph, the masses of myxosporidia in the kidney tubules; at *c*, a large blood vessel filled with blood corpuscles; and at *b*, blood corpuscles, from extravasation, lining the edge of the section.

FIG. 2. A single spore showing the projectile threads with their origin on the periphery of the pole corpuscles, and their passage through the wall of the spore at right angles to its long axis. The figure is made from a camera-lucida tracing, and represents accurately the extreme length of the threads which could be traced through the kidney elements in the section. From a section stained with Babes' anilin-water safranin.

FIG. 3. A camera-lucida drawing representing a kidney tubule with three spores lying in its interior. From a specimen stained in Pfitzner's alcoholic safranin, showing the faint capsule, the brilliant red polar corpuscles, and the plasmatic mass at one-side of the spore. A close inspection will disclose the difference in the shape of the plasmatic mass. In one spore it is undivided; in another a line of division is faintly visible; while in the third, two well defined crescents may be seen lying on the pole corpuscles.

¹ I am under obligation to Dr. Watasé for samples of these anilins and directions for their use.



Fig. 1

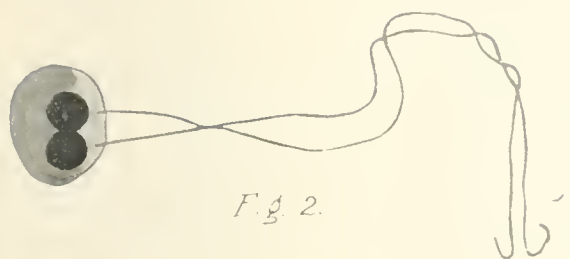


Fig. 2.



Fig. 3.

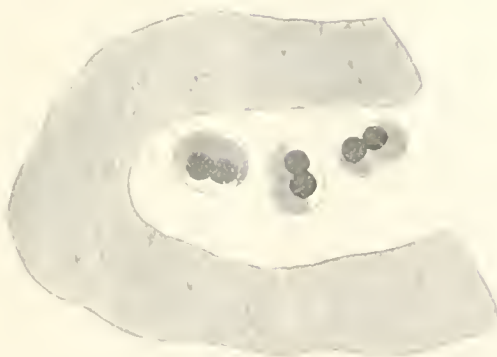


Fig. 4.

A. P. OHLMACHER

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TO ACCOMPANY "BIOLOGICAL MACHINERY" BY ARTHUR MYERS, EDITED BY THE COMMITTEE.

Fig. 4. Capsules of the spores showing the striations. In *a*, the markings will be seen to be running nearly meridionally; and at one side of the spore a single pole corpuscle appears in the act of escaping from a rent in the capsule; at *b*, the markings are more nearly equatorial, and in the center of the capsule may be seen the heavier line marking the line of union between the two valves. The fragment of a capsule at *c* shows the striations to be apparently the optical appearance produced by bands of a more dense material encircling the capsule.

Fig. 3 was drawn with Leitz' "Pantachromatic" obj. 3 m. m., oc. 4. Figs. 2 and 4 were made with Leitz' "Pantachromatic" obj. 2 m. m., oil immersion, oc. 4.

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DOMESTIC CORRESPONDENCE.

Revision of the Code.

TO THE EDITOR OF THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Dear Sir:—Literally, re-vision means seeing again, and that is certainly what is now needed with reference to the Code of Ethics, not only the seeing again the immediate ideas expressed and the language used to express them, but clearer perception and better application of the underlying principles. The essential thing is to secure clearer thinking, and more conscientious observance of correct ethical principles. Codes are but a means towards the attainment of this end and probably they are not the most valuable or important means. A diffused, misunderstood, unenforced code may, as shown in my previous letter, instead of being a help in this direction, be a serious hindrance.

There is no doubt that the code has in many instances exerted beneficial influence, particularly on the thought of those just entering the profession. Placed in the hand of the young graduate, it has often and might have been much more frequently as influential and as valuable as any other essay that he could have read, either upon this or upon any other topic of professional interest. But would it not be of more value to this part of the profession, instead of pushing aside the subject of professional ethics into an enacted Code (which purports to be a workable law, but in reality is not)—would it not be more beneficial to recognize the importance of professional ethics by a series of lectures to those preparing to enter the profession? The rapidly developing subject of professional ethics demands for its elucidation a living literature, instead of a dead Code.

The Code was intended to indicate in a way who do and who do not belong to the medical profession. This function was doubtless best performed and most important at the time of its adoption. Since then there have been radical changes in the condition of the medical profession. In direct opposition to what was then the case, almost every State now

has laws determining who are and who are not legally, and in the general judgment of the community, entitled to practice; and such laws, though often very defective, are rapidly being improved and applied to new sections of the country. In the future, these laws are certain to determine the boundaries of the medical profession upon lines of preparatory education and professional training. Lines which will necessarily be important, because accepted by public opinion, and by the large proportion of the profession outside of the Association and its affiliated Societies. The need of a Code of Ethics to define the boundaries of the medical profession has largely passed away, and its influence from this time forward will be rather in establishing the lines, not of a profession, but of a sect.

Again, the American Medical Association, as a whole, can not determine whether any particular man belongs properly within the profession or not. Even with our Code of Ethics, this really rests with the local societies, nor can any code of ethics be drawn that will work, except in so far as it is supported by local professional sentiment. The professional standard in different places varies; in some it may be lower than in others, but the best we can do about it is that when his immediate neighbors accept a doctor as their peer in the profession those of us living at a distance must go on the assumption that their judgment in the case is correct. It is at least the best judgment that can be obtained.

It would, therefore, be better if the local societies were made to feel more strongly their responsibility in the matter, and, in many localities the closer adaptation of the code of ethics to the state of local professional opinion would result in a marked raising of the standard of conduct.

Perhaps the best possible solution of the present problem of revision would be the adoption by the American Medical Association of a code of ethics declaring, in general terms and the fewest possible words, the fundamental principles of professional ethics; and the adoption in the by-laws of a provision requiring that the codes of ethics of affiliated societies shall be *in accordance, not identical* with the code of this Association.

Such a course compelling local medical societies to fully consider the principles of professional ethics, and the methods by which they may be enforced, instead of laying the whole subject aside by simply calling for the ayes and nays would secure a true revision of the Code. And every local code which came into existence would have the enormous advantage of being better adapted to the views of the profession in the locality in which it was to be enforced.

That there would be great diversity on many subjects, and that the judicial tribunal of our Association would have opportunity and need to exert its discretion and influence, there can be no question. But as long as diversity of view actually exists in the minds of the profession, the Association can only become truly a representative body by recognizing it and providing for it, and, if the American Medical Association is to become that which its founders dreamed and which we all desire, the time to recognize and provide for such diversity of professional opinion has come. Let us have professional union in all matters in which we are ready to unite; and still let us utilize what benefit diversity of view can bring.

EDWARD JACKSON.

215 South 17th Street, Philadelphia, Pa.

TO THE EDITOR OF THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Sir:—The discussion of the Code is assuming much importance in THE JOURNAL, but not too much considering the issues involved. I have followed it with great interest as the different writers very distinctly indicate the cleavages of professional opinion on great ethical subjects. They vary

from a keen appreciation of, and devotion to the great moral truths and principles which underlie nobility of character in any profession or business, as set forth in the classical letters of "Conservative Member," to the utter lack of all pretensions to professional honesty as exhibited in the letters of "Fair Play," and "Practitioner." This discussion has not only convinced me that the Code as it stands should be firmly maintained by the Association, but that the schools should be compelled to teach it thoroughly to every graduate. It seems impossible that some of your correspondents could have read the Code, much less have studied it in detail. If they have not they could not spend an hour more profitably than in reading it. Another fact made apparent by this discussion is this, viz., without the restraining and sustaining influence of the Code, many medical men in all parts of the country would gravitate rapidly to the lowest level of quackery, and bring contempt upon the profession. In the interest of those members of the Association whose feeble knees scarcely sustain them in an erect position let the Code remain.

INQUIRER.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Dear Sir:—For months past we have watched with curious interest what has been published in THE JOURNAL, in reference to the revision of the Code of Ethics. And while we have concurred with much that several critics have published in reference thereto, none we believe, have so nearly expressed our sentiments as Drs. A. C. Simonton, in April 22, and Thos. F. Rumbold, in May 6. So to these we refer, for much that we would otherwise say on this subject. But we beg a little space to add a few random jottings.

It has been our humble lot to associate, more or less intimately, with doctors of high and low degree in various parts of our country—north, east, south and west; and with extremely rare exceptions, we have observed that those sticklers for a *written Code of Ethics*, are just the class of persons who most frequently violate those golden rules of conduct, the basic principles of which are the birthright of every truly honorable person. Who has not often seen the *written Code of Ethics* used as a cloak and defense for most contemptible wrong doing of doctors? But we have never observed an instance in which a would-be crooked doctor was compelled or influenced in any appreciable degree to "tote fair," by the use of the *written Code of Ethics*. Hence, we have long since ceased to respect said Code as a ruling power.

Now, we are told that "some of the largest societies that are in affiliation with the American Medical Association and annually send to that body their quota of delegates, do not in their constitutions or elsewhere make any recognition whatever of the Code of Ethics, or require their members to subscribe to an acceptance of the Code."

Now this is quite astonishing, at least to us unsophisticated denizens of this way-off "neck of the woods," down in wild rebellious Texas.

Just think of it! Right in the classic precincts of the brilliant hub of the great Northwest, yea, even under the vigilant nose of great Father Davis (whom we all delight to honor) can such things be? Well may we meditatively soliloquize: "If the righteous scarcely be saved, where shall the ungodly and the sinner appear?"

For, indeed, may the true devotee of Esculapius turn loathingly away from this whole matter in unfeigned disgust, wondering who made Lord Percival, the Great, to rule over us, the driveling puppets of a sycophantic age.

So, like the man who bade the sun stand still until he could finish his job, we would consolingly say: "But as for me and my house we will serve the Lord," of the Golden Rule as best we may; whilst scarlet-robed Pharisees "strain at

gnats and swallow camels;" and precedent-worshipping Scribes shout from the housetops, "*Oh, brethren, thus it is WRITTEN!*"

I. C. SMITH, M.D.

Austin, Texas, May 9, 1893.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Dear Sir:—There is so much being said now-a-days relating to the Code of Ethics, with its disadvantages and its necessities that I deem it in accord to express my views. I am a believer in a code that will better the condition of the profession at large. To hold us together in a united brotherhood in such a way that union of thought may become a mighty force in the advancement of our science. The progress of the profession will not be so fast without a code as with one. The science of medicine will not reach its excellence by a few as it will by a united effort brought to bear on nature's resources, acting as a constant stimulus to our energies.

As the profession is becoming overcrowded there seems to be a growing discontent, in the struggle for an existence, for the present Code. It seems that it is not liberal enough in its by-laws to permit a great many who seemingly appear to honor the Code, to enter into by and forbidden paths as they would like. To proclaim to the world what manner of men they are. Not long ago while attending the organizing of a medical society, on the discussion of by-laws there seemed to be a faltering opinion among some of the gentlemen present whether to accept the Code of Ethics of the American Medical Association, or to reject it. One gray-headed gentleman arose (one who had borne the reputation of being honorable) and said that the Code of Ethics had become obsolete. But the gentleman's convictions did not convince the majority of the society, and the Code of Ethics of the American Medical Association was adopted.

We can't fairly say that because one advertises in pamphlet, circular, or that popular medium, the newspaper, he is a quack, for some of our very best surgeons use these means as a messenger to carry the news to the world, and proclaim what manner of men they are. But one that uses these means for heralding his superior skill must not forget that he is taking unfair means of gaining a reputation, providing he has taken an oath which most of us have: declaring to sustain the Code in all its forms.

But, nevertheless, whatever the condition should be, it is pretty safe in saying that one-half of all the members of the American Medical Association break some part of the Code; the bent of the times seems to be opposed to restraint. The anxiety for one to gain notoriety through printer's ink seems to be fast gaining ground. If every one that breaks some part of the Code was brought to an account, I am afraid there would not be enough left to fill the offices in our medical societies.

The times demand a change in the Code. Amendments must be made. Why! not one layman in a thousand knows or cares anything about the Code. If the times don't fit the Code, the Code must be made to fit the times. It seems reasonable to suppose that one who makes a specialty of a certain branch, ought by some means to let the people know (say by card) that he only treats certain diseases; and it might be better for the patient and for the physician if there were more specialists, and one should confine his practice to his specialty.

If medical societies were more strict in bringing to an account members who violate the Code, the present Code would do very well. But how often is it done? We might say, never. It is so infrequent. Honorable men need no code, and I doubt if any code can make an honorable man out of a dishonorable one.

L. P. WALBRIDGE.

Decatur, Ill., May 9, 1893.

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MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, MAY 20, 1893.

THE TREATMENT OF ASIATIC CHOLERA.

While we are anxiously awaiting the perfection of positive, preventive inoculations against Asiatic cholera which the experiments and demonstrations of HAFKINE appear to show is not an impossibility, and until the serum therapy of KLEMPERER and many others is rendered readily available, epidemic cholera must be subjected to rational treatment based upon our knowledge of the disease. The recent cholera epidemic was productive of considerable literature concerning the various modes of treatment practiced. Thus the importation of Asiatic cholera to New York from Europe and the confinement of a considerable number of cases at the quarantine station on Swinburne Island, gave the physicians connected with the port of New York opportunity to study certain modes of treatment, and Dr. FRANK ABBOTT, JR., describes in the *Medical Record* for March 25, 1893, the general plan pursued at the quarantine station. It will be seen that the plan of treatment embodies in the main the recommendations of CANTANI, who, recognizing that cholera was a localized infective process, elaborated a method of therapeutics directed towards destroying the bacilli in the intestines and towards neutralizing the effects of the poisonous substances produced by the bacilli and absorbed from the digestive tract. By means of flooding the intestines with acid solutions it was thought that the first indication could be met quite fully. Such rectal injections have been shown to reach not only the different parts of the large intestine but also the small, even up to the stomach. In case the injection refuses to pass into the small intestine, massage over the cæcum will soon overcome the obstruction. The solution used most frequently is a 2 per cent. solution of tannic acid in sterilized water at a temperature of from 40° to 42° C. The injection is made by means of a flexible catheter about two feet in length, and a fountain syringe held

at a height of four or five feet. In the adult the dose is a quart up to a gallon, repeated as frequently as the symptoms demand it; in children about a pint should be injected every two hours or more frequently if necessary. Enteroclysis performed in this way acts as a disinfectant, and the temperature of the solution may help to overcome the tendency to collapse. In many cases it was found that this treatment, in conjunction with stimulation by means of hot coffee or tea with brandy and external heat, was sufficient to arrest the progress of the disease.

When the diarrhœa is profuse and persistent and threatening collapse appears, then hypodermic injections of alkaline solutions must be resorted to without a moment's delay. The alkaline solution consists of seven parts of chloride of sodium dissolved in 1,000 parts of sterilized water, and to this may be added, if thought necessary, ten parts of brandy or six parts of pure alcohol. The temperature of the solution should be 37° C. Hypodermoclysis is performed by means of an ordinary bulb or fountain syringe and a small aspirating needle inserted into the lateral chest region. The amount injected each time is variable; in an adult a quart is not too much, and this may be repeated as often as necessary to maintain the pulse full and strong. In many cases the absorption rate of the fluid was found to have prognostic value; if absorption be slow or do not occur at all, then the vitality of the patient may be regarded as very low. Hypodermoclysis seems to replace the water lost from the blood, to increase the volume of this fluid, to dilute the ptomaines produced by the bacilli. Enteroclysis and hypodermoclysis are to be continued incessantly until the temperature of the body and the action of the heart show that the case is improving. In addition to these measures hot air baths and oxygen inhalations are of great benefit. During the reactionary stage and during the long and tedious convalescence great prudence must be exercised in diet and drink, lest serious complications arise.

The results of this method of treatment obtained at the New York quarantine station were quite satisfactory. In the steamers that brought the cholera patients over the ocean the death rate on board often reached as high as 90 per cent. of the total number of sick, while at Swinburne Island only 20 per cent. died. It is thought that the treatment, commenced early in the disease and continued with careful attention to the minutest detail, might reduce the mortality rate still lower. It will be seen that in its principles this method of treatment of Asiatic cholera is based upon a rational interpretation of the pathology of the disease as it is understood to-day, and consequently the scientific physician would expect better results than with the older plans of treatment, and the statistics appear to warrant the correctness of this view.

THE BRITISH GYNECOLOGICAL SOCIETY REFUSES ADMISSION TO WOMEN.

The English gynecologist is charged with being an ungrateful, if not ungracious, element of his profession. He does not welcome the company of his co-practitioners of the gentler sex, when he knows full well that without the gentle sex he would be but a stranded bark. Or, as the *Press and Circular* puts it, "they would retain the ladies as subjects, handmaids, patients, but display a marked reluctance to admitting them 'on all fours' within the sacred precincts of the societies."

The British Medical Association has so far and frankly retracted its former exclusive policy against medical women that some of the latter have felt that the time had come for them to try and land with both feet within the pale of the British Gynecological Society. Some of them have been rapping loudly at the door of that society, emboldened so to do by their knowledge that that society is a come-outer and a standing protest against traditional prejudices and notions. The ladies seem to have forgotten the fact "that protestation in professional matters is more often personal" than based on principle and may be a very one-sided and self-interested affair. These ladies have made two applications for membership; they encountered a gruff negative the first time they knocked at the door. When the second application was made "though a noise as of a struggle inside was heard there was a voice gruffer than ever, that bade them gird up their loins and begone. It would be foolish to suppose that the ladies will take 'no' for an answer. They have not done so in the past, and they are unlikely to do so in the future." The doors must sooner or later open, and there must be a smile of welcome, too, on the face of him who conducts them to their chairs.

PHENOCOLL HYDROCHLORIDE AS A LOCAL APPLICATION.

A paper by DR. CARL BECK, in the *New York Medical Journal*, April 22, presents an argument in favor of the antiseptic external use of the drug named in the caption. He finds in this drug a good substitute for iodoform, probably as powerful as the latter, and rather more so than aristol, dermatol, iodol, pyoktannin and some others that have been coming to us from Germany during the past year. Apart from the question of strength, the author prefers phenocoll to iodoform for the following reasons: the former is devoid of odor; it is readily soluble in hot water; it does not irritate the sound skin; it is not contra-indicated in cases of kidney disease; it can be safely applied over extensive surfaces as of burns or ulcers; it is potent in comparatively low percentages of strength. When DR. BECK began the external use of this substance, he dusted the undi-

luted powder over the wounded surfaces and then applied a layer of sterilized moss or gauze. Although this treatment was followed by no irritation of the integument and by no symptoms of toxic impression, he found that he obtained equally good results, in many cases from a ten per cent. gauze; so that latterly he has limited himself to the use of the penocollated gauze. This can be used on recent wounds and on granulating surfaces; the layer of gauze should be thin and as a rule be protected by a piece of sterilized moss. The dressings may be renewed once in three days for there is not an excessive discharge from surfaces thus managed. The process of healing does not vary much from that observed under iodoform. The urine was frequently examined in the case of each one of this series of cases, numbering over one hundred, with negative results as to the discovery of any renal disturbance referable to the drug. In fact, albuminous urine has not very frequently been caused by its internal administration as an antipyretic or antirheumatic, which has heretofore been the best known uses of phenocoll hydrochloride.

The report of DR. BECK covers the experience of three months at St. Mark's Hospital and the German Poliklinik of New York, and is the first installment of researches that are still being carried out with regard to the antiseptic powers of the drug named, as well as others of the synthetic series.

SYMPHYSIOTOMY SUCCESSFULLY PERFORMED UNDER DIFFICULTIES.—According to the *New York Medical Journal*, April 1, a pubic symphysiotomy was performed March 24, by Dr. J. C. Edgar, on short notice at midnight, in a tenement house. The patient was a primipara with flattened pelvis, and had been in labor forty-eight hours. The family clamored for the sacrifice of the child's life to save the mother's, but Dr. Edgar was enabled to carry out the above named operation. The child was delivered alive, and both mother and child have since been reported as doing as well as could be expected.

ASSOCIATION NEWS.

SECTION OF LARYNGOLOGY AND OTOTOLOGY.—There will be a Section dinner on the second day of the meeting at 6 P. M., and it is hoped that all members who attend the Section will participate. Those wishing to do so will please signify their intention without delay to the Secretary, Dr. J. E. Boylan, 113 Broadway, Cincinnati. Tickets will be furnished on the first day of the meeting.

I HAVE just received from the Western Passenger Association the usual concession of a fare and a third to Milwaukee on the certificate plan. The

passenger pays full fare going, takes a receipt or certificate at the time of the agent, which, signed by me at Milwaukee, enables the purchase of return for one-third fare. No stop over allowed on return. Where a through ticket can not be obtained at starting point, a certificate must be taken at each place of purchase of portion of ticket, and each of these must be signed to obtain reduction on return. Certificates will not be honored for return unless presented within two days after the date of adjournment (Sunday not being included as a day), nor will certificates be honored where going tickets were purchased more than three days prior to the commencement of the meeting, nor after date of closing.

I shall send this to all points, though some roads have not yet signified their agreement. All have told me they waited to learn what the Western Passenger Association would agree to and would be guided by that.

WM. B. ATKINSON.

Philadelphia, May 8, 1893.

THE COMMITTEE OF ARRANGEMENTS for the forty-fourth annual meeting of the American Medical Association, to be held in Milwaukee June 6, 7, 8, 9, 1893, desire to make the following announcement:

The Western States Passenger Association has made arrangements for the usual reduction of fares to and from the place of meeting—namely, one and one-third rates for the round trip.

By purchasing tickets to Milwaukee, and asking at the time a certificate from the railroad agent, and having that signed by the permanent secretary, Dr. W. B. Atkinson at Milwaukee, return tickets at the reduced fare can be obtained. This arrangement will not, however, admit of any stop-over, and for those who may desire to visit the Columbian Exposition at Chicago, the Committee would recommend that delegates and members purchase their tickets to Chicago and return at Exposition rate, which undoubtedly will be as low, if not lower than the one and one-third rates, and will be good for the season.

Delegates and members should then procure in Chicago round trip tickets, good for the season, between Chicago and Milwaukee, which can be purchased at reduced rates, the tickets now being \$4.00 for the round trip, either by rail or steamboat.

The distance is eighty-five miles. Trains run every hour or two, either by the Chicago, Milwaukee & St. Paul or by the Chicago and Northwestern line. Boats leave Chicago at night and in the morning, arriving at Milwaukee in the morning and afternoon, and return at the same time.

On arrival in Milwaukee, delegates and members are requested to register at once at the registration headquarters in the Hotel Pfister building, corner Wisconsin and Jefferson Streets. All are also requested to register ladies accompanying them on a sepa-

rate register for the use of the Ladies' Reception and Entertainment Committee. The registration office will be open from 9 A. M. to 8 P. M. Monday, Tuesday, Wednesday and Thursday and from 9 A. M. to 1 P. M. Friday.

Telegrams will be forwarded by messengers to the stopping place in the city of the delegates and members if addressed, "Care Headquarters A. M. A., Hotel Pfister." Letters must be called for at the headquarters' postoffice.

As the city will be full of visitors at the time it is advised that all intending to attend the meeting should secure hotel or other accommodations in advance, for all will be required to register their place of abode in the city.

For any further information address the Chairman of the Committee of Arrangements, who will see that prompt attention is given to all communications.

U. O. B. WINGATE, M.D.

Chairman Committee of Arrangements.

In the Section on Dental and Oral Surgery of the American Medical Association the following papers will be read:

Address, Dr. A. E. Baldwin.
Medication in Dental Practice, Dr. Edgar Palmer.
Caries and Necrosis, Dr. G. H. McCausey.
The Enemies of the Human Teeth, Dr. A. M. Benson.
Infection of the Mouth, Dr. E. L. Clifford.
Empyema of the Maxillary Sinus, Dr. M. H. Fletcher.
Diseases of the Jaws, Dr. V. A. Latham.
Practical Therapeutics, Dr. George V. Brown.
Subject not given, Dr. Taft.
Fallacy of Foy's Theory of the Vault, Jaws, and Gums, being influenced by Temperament, Dr. E. T. Talbot.

PRELIMINARY PROGRAM OF THE SECTION ON OBSTETRICS AND DISEASES OF WOMEN.

TUESDAY, JUNE 6—AFTERNOON SESSION, 3 P. M.

Address of the Chairman, John Milton Duff, Pittsburg, Pa.
Subject: Some General References to Obstetrical and Gynecological Advancement.

1. The Causes of Diseases of Women, Chas. P. Noble, Philadelphia, Pa.
2. Menorrhagia, John Herbert Claiborne, Petersburg, Va.
3. Puerperal Hemorrhage, Jas. P. Kerr, Pittsburg, Pa.
4. Abortion, Thos. H. Hawkins, Denver, Colorado.
5. Relief from Pain in Labor, I. N. Love, St. Louis, Mo.
6. The Routine Practice of Administering Ergot after the Third Stage of Labor, T. Ridgeway Barker, Philadelphia, Pa.

WEDNESDAY, JUNE 7—MORNING SESSION, 9 P. M.

7. Thos. Opie, Baltimore, Md. Title not given.
8. Suspensio Uteri, Howard Kelly, Baltimore, Md.
9. Surgical Treatment of Uterine Flexions, M. B. Ward, Topeka, Kan.
10. Pubeotomy, Barton Cooke Hirst, Philadelphia, Pa.
11. Porro vs. Cæsarian Section, J. H. Carston, Detroit, Mich.
12. Vesico Vaginal Fistula, Its Etiology and Treatment, Augustus P. Clarke, Cambridge, Mass.

WEDNESDAY, JUNE 7—AFTERNOON SESSION, 2:30 P. M.

13. Methods of Operating and Materials in Pelvic Surgery, Joseph Price, Philadelphia, Pa.
14. Methods of Removing the Uterus for Uterine Fibroids, with Report of Cases, J. N. Martin, Ann Arbor, Mich.
15. The Propriety of Operative Interference in Pelvic Peritonitis, Louis Schooler, Des Moines, Iowa.
16. Essentials of Success in Vaginal Hysterectomy, Henry T. Byford, Chicago, Ill.

17. Irrigation and Drainage in Abdominal and Pelvic Surgery, W. E. Ashton, Philadelphia, Pa.

18. A few Aseptic Precautions Necessary to Prevent Sepsis in Coeliotomy, W. H. Watham, Louisville, Ky.

19. Pelvic Conditions Supervening upon Laparotomy, Ely Van DeWarker, Syracuse, N. Y.

THURSDAY, JUNE 8—MORNING SESSION, 9 A.M.

20. The Accouchement Force in Certain Obstetrical Complications, Lewellyn Elliott, Washington, D. C.

21. The Rigid Os as a Complication in Labor, E. H. King, Muscatine, Iowa.

22. W. J. Asdale, Pittsburg, Pa. Title not given.

23. The Use and Abuse of the Uterine Dilator and Curette, Jos. Tabor Johnston, Washington, D. C.

24. Drainage of the Uterine Cavity, A. J. Puls, Milwaukee, Wis.

25. Cocaine, its Uses in Gynecology, W. H. Humiston, Cleveland.

THURSDAY, JUNE 8—AFTERNOON SESSION, 2:30 P.M.

26. Scientific Obstetrics in Private Practice, E. P. Davis, Philadelphia, Pa.

27. The Diagnosis and Treatment of Placenta Prævia, Geo. D. McElway, Philadelphia, Pa.

28. Extra Uterine Pregnancy, A. H. Cordier, Kansas City, Missouri.

29. Abdominal Hysterectomy Without a Pedicle, Rufus B. Hall, Cincinnati, Ohio.

30. Nephrectomy for Uretero Vaginal Fistula Following Hysterectomy, L. H. Dunning, Indianapolis, Ind.

31. Electrolysis in Gynecology, G. Betton Massey, Philadelphia, Pa.

FRIDAY, JUNE 9—MORNING SESSION, 9 A.M.

32. Some Points in Gynecology of Interest to the General Practitioner, Jos. Eastman, Indianapolis, Ind.

33. Salpingo Oophorectomy for Hystero-Epilepsy and Allied Neuroses, W. P. Manton, Detroit, Mich.

34. Lactational Insanity, Geo. H. Rohé, Catonsville, Md.

35. The Topical Application of Drugs, versus Mechanical Treatment in Diseases of the Uterus, E. A. Wood, Pittsburg, Pa.

36. The Treatment of Certain Results of Bad Surgery in Emmett's Operation of Trachelorrhaphy, E. C. Dudley, Chicago, Ill.

FRIDAY, JUNE 9—AFTERNOON SESSION, 2:30 P.M.

37. Johnston's Modification of the Hodge Forceps, George C. Mosher, Kansas City, Mo.

38. The Nature of Shock, Eugene Boise, Grand Rapids, Mich.

39. A New Operation for Uterine Fibroids with Report of Cases, Franklin N. Martin, Chicago.

40. Eight Consecutive Cases of Abdominal Section, A. C. Wilson, Chicago, Ill.

Complimentary Papers by Drs. Hoffman, E. E. Montgomery, Philadelphia, Pa.; W. W. Jaggard, Henry Parker Newman, Chicago; Chas. A. L. Reed, E. Ricketts, Cincinnati, Ohio; Maxwell, Keokuk, Ia.; W. W. Potter, Buffalo, N. Y.; Chas. N. Smith, Toledo, O.; H. O. Marcy, Boston, Mass.; F. W. Ross, Toronto, Can.; T. L. McMurty, Louisville Ky.; Miller, Syracuse, N. Y.; Adams, Kansas City, Mo.; Myers, Ft. Wayne, Ind.; Holmes, Rome, Ga.; J. M. Batton, W. D. Kearns, Pittsburg, Pa.; W. J. Konklin, Dayton, Ohio.

MISCELLANY.

At a meeting of the Board of Pathologists of the New York City Asylum for the Insane held April 4, 1893, the following resolution was adopted:

WHEREAS, Death has deprived this Board of one of its most valued members, and each personally of an esteemed and worthy professional brother, Dr. Frank H. Ingram; therefore be it

Resolved, That the members of this Board express their regret at the untimely termination of his promising career, and that they extend to his family the expression of their deep sympathy with them in this great affliction.

FRED K. PETERSON, M.D. } Committee.
JNO. P. MCGOWAN, M.D. }

The eighth annual meeting of the Association of American Physicians, will be held in the Army Medical Museum and Library Building, corner Seventh and B Streets, Washington, D. C., May 30th and 31st and June 1st, 1893.

THE PAN-AMERICAN MEDICAL CONGRESS.—The Section in Marine Hygiene and Quarantine has been organized as follows: Honorary presidents: Dr. Lino Alarco, Lima, Peru; Dr. Henry B. Baker, Lansing, Mich.; Dr. Cardenas, Managua, Nicaragua; Dr. J. J. Cornilliac, St. Pierre, Martinique, F. W. I.; Dr. Felix Formento, New Orleans; Dr. H. B. Horibeck, Charleston; Lieutenant-Colonel Amalio Lorenz, Sub-inspector of second class Spanish Navy, Havana; Dr. F. Montizambert, Quebec, Canada; Dr. Francisco Nunez, St. Tecla, Salvador; Dr. Juan Ortego, Guatemala, Guatemala; Dr. Joseph Y. Porter, Jacksonville, Fla.; Dr. John Pringle, Kingston, Jamaica; Dr. Juan J. Unoa, San José, Costa Rica; Dr. J. Mills Browne, Surgeon General, United States Navy, Executive President: Dr. Walter Wyman, Surgeon General, United States Marine Hospital Service, Washington. Secretaries: Dr. S. T. Armstrong (English speaking), 166 West Fifty-fourth Street, New York; Dr. G. M. Guitéras (Spanish speaking), United States Marine Hospital Service, Washington. Advisory Council: Dr. H. M. Biggs, New York city; Dr. John C. Boyd, United States Navy; Dr. H. R. Carter, Norfolk, Va.; Dr. W. M. L. Coplin, Philadelphia; Dr. A. G. Clopton, Galveston, Texas; Dr. C. G. Currier, New York; Dr. S. Durgin, Boston; Dr. Seneca Egbert, Philadelphia; Dr. George Homan, St. Louis; Dr. W. T. Jenkins, New York; Dr. J. F. McShane, Baltimore; Dr. G. H. F. Nuttall, Baltimore; Dr. S. R. Olliphant, New Orleans; Dr. Dabney Scales, Mobile; Dr. R. M. Swearingen, Austin, Tex.

The executive president desires to call the attention of all members of the medical profession that are interested in the topics pertaining to this Section to the regulation of the congress, that contributors are required to forward, not later than July 1, to the secretary of the section, abstracts, not to exceed six hundred words each, of the papers they propose to present before the Section.

The topics that will be considered by this section are as follows: 1. The hygiene of vessels, commercial or naval, including the questions of ventilation, heating, sanitary arrangements, the disposal of cargo so as to facilitate disinfection, food supply, etc. 2. The medical officers of passenger vessels; methods for their selection, duties, etc. 3. The vital statistics of seamen and firemen. The question of the medical examination of crews preparatory to shipping. 4. The supervision of vessels by government medical inspectors at ports of arrival and of departure. Code of rules for handling an epidemic disease that breaks out on shipboard. Disinfection of passengers and crew during a voyage. Location and arrangement of ships' hospitals. 5. Epidemic and exotic diseases propagated by shipping. What diseases should be quarantined. Responsibility of nations for epidemics; India for cholera, South America for yellow fever. Can a feasible plan be devised to totally exterminate cholera? International intervention to prevent the propagation of cholera or other epidemic diseases by pilgrimages or immigration. 6. International uniformity in quarantine regulations. Should quarantine officers be notaries public? 7. Arrangement of detail and equipment of quarantine stations: a, inspection stations; b, local quarantine stations; c, refuge stations. Methods for handling infected or suspected vessels. Interstate and inland quarantine; sanitary cordons; camps of refuge; camps of probation. Recent improvements in hospitals for infectious diseases. Railroad inspection and quarantine. Length of time vessels should be held in quarantine. Conditions that should determine proclamation of quarantine against a country. Under what requirements may passenger traffic be carried on between a port infected with yellow fever and a southern port of the United States during the summer with the least obstruction to such traffic? What merchandise should be considered as requiring treatment if shipped from a port or place infected with cholera, yellow fever or small-pox? 8. Methods of disinfection: a, persons; b, baggage; c, cargoes; d, vessels. Recent improvements in quarantine appliances; steam chambers; sulphur furnaces. Liquid sulphur dioxide as a disinfectant. Treatment of ballast; water; solid. What time should an infected vessel be detained in quarantine? a, for cholera; b, for small-pox; c, for typhus fever; d, for plague; e, for yellow fever. Methods of disposal of the bodies of those that die while in quarantine.

The Journal of the American Medical Association

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CHICAGO, MAY 27, 1893.

No. 21.

ORIGINAL ARTICLES.

A BRIEF DIRECTORY OF CHICAGO MEDICAL INSTITUTIONS.

Prepared for the convenience of members of the American Medical Association who may visit Chicago.

RUSH MEDICAL COLLEGE.

Medical department of Lake Forest University, was organized by Daniel Brainerd, M.D., who was its first president, in 1842. It is chartered under the general laws of the State for corporations. It is governed by a board of twelve trustees.

The college opened in a small building on the north side of the city, which was soon replaced by one larger and better arranged. This was destroyed by the fire of 1871. Then the college was moved to a temporary structure on the south side of the city, where it remained till four years later, when its present building was completed. It is located at the corner of Wood and W. Harrison Streets.

During the past winter a new laboratory has been commenced on the lot opposite the college, which will be completed in time for the next winter session. It will contain spacious rooms for laboratory instruction in chemistry, physiology, anatomy, bacteriology, pathology and materia medica, and will be equipped with the best apparatus for teaching and original research. The Central Free Dispensary with its clinic room, waiting room and drug room occupies most of the first floor of the college building. The faculty consists of twenty-five professors, seventeen demonstrators and lecturers and eight clinical instructors.

The Central Free Dispensary, the Alumni Association, and the various student organizations are associated with the faculty proper. A monthly journal, *The Corpuscle*, is published by the students. The Presbyterian Hospital adjoins the college building, and internes are appointed from the graduating class of the Rush Medical College.

The college has no endowment, and depends entirely on the fees of students for its income.

The course of study is laid out to cover four full years, but may be completed in three years. A spring course of two months is given, and examinations given at the end. A certain percentage of the sum of the markings of these examinations is added to the markings of final examinations and may materially raise the grade of the candidate for graduation.

During the session of 1892-3 there were 670 matriculants and 153 in the graduating class.

REQUIREMENTS FOR GRADUATION.

The following are the requirements for the degree of Doctor of Medicine:

1. The candidate must be at least twenty-one years

of age, and must give satisfactory evidence of possessing a good moral character, which includes unexceptionable conduct while at the college.

2. He must have pursued the study of medicine four years, and have attended three full courses of lectures of at least six months each, no two having been delivered in one twelvemonth. Of these the first two may have been in other recognized medical colleges, but the last must have been in this institution. The lectures of the spring term can not be considered as a course of lectures in this requirement.

3. He must have received clinical instruction during at least three college terms.

4. He must have taken at least two courses in practical anatomy and have completed the study under the direction of the demonstrator.

5. He must have taken one course in practical chemistry.

6. He must have taken one practical course in the laboratory of physiology and pathology.

7. He must have taken one practical course in auscultation and percussion.

8. He must have taken one practical course in obstetrical manipulations.

9. He must have taken one practical course in operative surgery upon the cadaver.

10. He must notify the secretary of the faculty of his intention to become a candidate before January 1, pay all dues, and deposit the amount of the examination fee with the treasurer, on or before the 25th day of February.

11. Every candidate must undergo a full and satisfactory written or oral examination on each branch taught in the college.

NORTHWESTERN UNIVERSITY MEDICAL SCHOOL.

(CHICAGO MEDICAL COLLEGE.)

This medical school was founded in 1859 as the medical department of Lind University of Chicago, and instruction was begun in the fall of the same year. The incorporators and teachers were Professors (Drs.) H. A. Johnson, R. N. Isham, David Rutter, Edmund Andrews, N. S. Davis, W. H. Byford and J. H. Hollister. The school established a graded course of instruction from the beginning and was the first medical college in this country to establish such a course. It requires three years of medical study as a condition of graduation. In 1864 it separated from Lind University because of the financial misfortunes of that institution and was incorporated as the Chicago Medical College, an independent school. In 1869 it united with Northwestern University as the medical department of that institution, retaining the name Chicago Medical College. Under the terms of that union the medical degrees were conferred under the authority of the university upon the recommendation of the medical faculty.

In 1890 the union with the university was made more intimate—the medical college property was transferred in trust to the university. The name Chicago Medical College was retained as a subordinate title to Northwestern University Medical School. Nominations to places on the medical faculty are made by the medical faculty to the trustees of the university. Degrees are conferred by the university upon candidates acceptable to the medical faculty. The income of the medical school is expended in the improvement of the medical department only. The trustees of the university are the governing board of the medical department.

The school has erected a laboratory building costing \$140,000 during the last year. This building is for laboratory and other practical instruction in chemistry, botany, physiology, pathology, bacteriology, materia medica, pharmacy, anatomy, etc. Endowments of \$100,000 have been made. A new building for didactic and clinical teaching, to cost \$25,000, will be erected this year.

Number of matriculates for 1892-3, 268; number of students in graduating class for 1892-3, eighty-nine.

THE WOMAN'S MEDICAL SCHOOL.

Medical department of Northwestern University.

In 1852 a woman was admitted to the course of lectures at Rush Medical College, but was denied admission to a second course. In 1869 four women were admitted to the course at the Chicago Medical College. But at the end of the course the male members of the class sent a formal protest to the faculty against the admission of women, which protest was sustained. Following this in 1870 Dr. W. H. Byford and Dr. Mary H. Thompson founded the Woman's Medical College for the exclusive education of women. The first course of lectures was given at 402 N. Clark Street in the Woman's Hospital. For the next session rooms were fitted up at 1 and 3 N. Clark Street, but the Chicago fire destroyed the building before the course was hardly begun. Lectures were resumed at 341 W. Adams Street, and later moved to 598 on the same street where the hospital had been moved; the hospital was moved to the corner of Paulina and Adams for the next year, and a barn in the rear of the hospital was fitted up for the college. This was occupied for five years, when a part of the present building was constructed at 333 S. Lincoln Street, and the main portion added in 1889.

In 1891 the college became a part of the Northwestern University, and though it still has a separate board of trustees, it is governed by the university.

The Lincoln St. Dispensary is located in the older part of the college building, where it has well equipped clinic rooms. There are laboratories for work in anatomy, chemistry, histology and pathology, and suitable instruments for work in the several lines. The Northwestern University is erecting extensive laboratories at Dearborn and Twenty-fifth Streets, which will be open for the next session. They will be equipped with all the modern apparatus, and will be open to students of the Woman's College for advanced work free of charge.

The faculty of the college consists of five emeritus professors, twenty-four active professors, and sixteen lecturers and assistants.

This college has no endowment other than as it is a part of the university.

The curriculum is laid out for a three years' course for those who have studied one year under a preceptor, and a four years' course for those who have not. The time card is divided into three years.

During the session of 1892-3 there were 137 matriculants and thirty in the graduating class.

The essentials for graduation are:

1. A candidate for graduation must be twenty-one years of age.

2. She must have studied medicine four full years, either under the direction of the Faculty, or a regular physician as a preceptor, and have attended at least three full courses of lectures in a recognized medical school, one of which must have been in this institution.

3. She must have taken two courses in practical anatomy and have dissected each of the usual divisions of the subject at least once, under the supervision of some competent instructor.

4. She must have taken one course in practical chemistry, one course in the histological laboratory, one in the pathological laboratory and two courses in hospital clinical instruction.

5. She must notify the secretary of the faculty of her intention of becoming a candidate, pay all dues, and deposit the examination fee with the treasurer on or before the 25th day of February.

6. Every candidate must undergo a full and satisfactory written or oral examination on each branch taught in the school.

7. Good moral character (which includes unexceptional conduct while at the college).

THE COLLEGE OF PHYSICIANS AND SURGEONS OF CHICAGO,

was organized with the late A. Reeves Jackson, A.M., M.D., as president in 1881. It has a charter under the general laws of the State for corporations. The government is in the hands of a board of nine directors selected out of the faculty.

The college opened twelve years ago in its present building on the corner of Harrison and Honore Streets and opposite the County Hospital. During the past year an addition 27x100 feet has been added to the original structure. This addition is six stories high and is occupied by six laboratories, each 156x25 feet. The West Side Free Dispensary has fifteen clinic rooms and a large waiting room and drug room. The laboratories are equipped with sixty-two first class microscopes and sixteen microtomes for students' use and a few instruments for special purposes and for demonstration. The faculty consists of twenty-nine professors, sixteen demonstrators and lecturers and twenty-four clinical instructors.

The West Side Free Dispensary, the Alumni Association, and the various associations of students are auxiliaries to the parent organization.

This college has no endowment and depends entirely on the fees of students for an income.

The course of study is equal to forty-five courses of sixty recitation hours each, and is laid out to cover four ordinary years of medical study. Students are however able to complete this course in three years by attending spring courses in which they are able to do a full amount of a portion of the course and pass final examinations the same as in the winter. The following is an outline of the course with the number of recitation units of sixty hours required in each:

First year.—Comparative anatomy, two courses of sixty recitation hours; human anatomy, two courses; histology, one and one-half courses; pharmacognosy, one course; general chemistry, two courses.

Second year.—Human anatomy, two courses of sixty recitation hours; physiology, one and one-half courses; histology, two courses; embryology, two courses; medical chemistry, two courses.

Third year.—Pathology, one and one-half courses of sixty recitation hours each; microscopical pathology, one and one-half courses; surgical pathology, one and one-half courses; bacteriology, one and one-half courses; principles of surgery, one course; obstetrics, one course; physical diagnosis, one course; general therapeutics, one course; surgical anatomy, one course; dental surgery, one course; medical jurisprudence and hygiene, one-half course; dermatology, one-half course; dispensary clinics, one and one-half courses; hospital clinics, one and one-half courses.

Fourth year.—Practical medicine, three courses of sixty recitation hours each; practice of surgery, two courses; operative surgery, one-half course; gynecology, one course; obstetrics, one course; genito-urinary and venereal, one-half course; ophthalmology and otology, one-half course; laryngology and rhinology, one-half course; diseases of children, one-half course; diseases of mind and nervous system, one course; dispensary clinics, one and one-half course; hospital clinics, two courses.

During the session of 1892-3 there were 350 matriculants and eighty-seven in the graduating class.

REQUIREMENTS FOR GRADUATION.

1. Satisfactory evidence of good moral character.
2. Satisfactory evidence that the candidate is at least twenty-one years of age.
3. Four full years of study of medicine under the direction of a physician, or of a medical college recognized by the Illinois State Board of Health.
4. Attendance upon at least three full winter courses of lectures in a medical college, recognized by the Illinois State Board of Health, the last of which shall have been in this institution.
5. He must have pursued the study of practical anatomy during two sessions, and to the extent of having dissected, at least, the lateral half of the body, and he must present the demonstrator's certificates for the same.
6. Attendance on two full winter courses of dispensary clinics and two full courses of hospital clinics.
7. Certificates of having passed the branches of the first, second, third and fourth year courses.
8. Payment in full of all fees.

THE CHICAGO POLICLINIC

has a fine large building at 174-176 Chicago Avenue. It was founded in 1885 and is open to legally qualified practitioners of medicine only.

The building contains large clinic rooms for the treatment of all classes of cases, and a hospital which will accommodate 100 patients. In the rear is a building containing a large amphitheater, clinic rooms and a clinical laboratory. There is a fine large dissecting room separate from the rest of the building. A pathological laboratory is now being fitted up with all the most approved apparatus. The course is entirely clinical and may be begun at any time during the year. The ticket of this college

admits to a number of hospitals of the city as well as its own clinics.

THE POST-GRADUATE MEDICAL SCHOOL OF CHICAGO.

was organized in 1889. It is a stock company, and is governed by a Board of Directors.

It has a large building at No. 815 W. Harrison Street, with well equipped laboratories, dissecting rooms and clinic rooms, an amphitheater which will seat over 200 students and a hospital which will accommodate seventy-five beds.

Officers: Dr. W. F. Coleman, Pres.; Dr. F. H. Martin, Sec'y; Dr. Sanger Brown, Treas.

There are no endowment funds. The number of students during the past year were about 175.

The course of study consists of clinical instruction each day in the following subjects: Medicine, surgery, gynecology, obstetrics, eye, nose and throat, ear, nervous diseases, genito-urinary, diseases of the rectum, diseases of children, skin and venereal diseases, medical chemistry, bacteriology.

The laboratories of the school are well equipped. The resident courses include all technical medical subjects, anatomy, operative surgery, histology, pathology, bacteriology, urine analysis and clinical diagnosis. The extension division arranges similar evening courses at centers throughout the city.

THE ILLINOIS TRAINING SCHOOL FOR NURSES was organized in 1880. It has for its object "to train nurses and to furnish them to the sick and wounded."

The office is at Cook County Hospital, and the Nurses' Home at 304 Honore Street. It furnishes nurses to the Cook County and Presbyterian Hospitals.

At the last report there were 210 pupils in attendance.

The school is supported by the income from the hospitals to which it furnishes nurses, by membership dues and subscriptions. It owns its own building.

There is in connection with the school a Bureau of Registration containing names of graduates who are sent out to do private nursing.

THE WOMAN'S HOSPITAL TRAINING SCHOOL is connected with the Woman's Hospital at the corner of Rhodes Avenue and Thirty-second Street. The course covers two years.

Last year twenty pupils attended.

Outside demands for nurses are supplied, and the income from this goes toward supporting the hospital.

The nurses are especially trained in nursing after surgical operations, in diseases of women and in obstetrical cases.

ST. LUKE'S FREE HOSPITAL TRAINING SCHOOL is at St. Luke's Hospital, No. 1434 Indiana Avenue. The number of pupils attending during the last session was twenty-three. Special nurses for private patients are also furnished.

A diet kitchen is run in connection to instruct nurses in the science and art of cooking.

THE BAPTIST HOSPITAL TRAINING SCHOOL FOR NURSES is located at 541 N. Halsted Street, and was organized in 1891. It is conducted in connection with the Baptist Hospital.

THE DEACONESS TRAINING SCHOOL FOR NURSES is a

department of the Chicago Training School. The work is wholly philanthropic, and is partly by nursing and partly by relief of want.

THE NATIONAL TEMPERANCE HOSPITAL TRAINING SCHOOL is located at 1619 Diversey Avenue, and is conducted in connection with the Temperance Hospital. It is also known as the "Clara Barton Training School."

SCHOOL FOR NURSES AT CHICAGO HOSPITAL FOR WOMEN AND CHILDREN.—The nurses live in the hospital and do the nursing. The term of service is two years.

THE MICHAEL REESE TRAINING SCHOOL FOR NURSES is located in the hospital, and provides nurses for the patients. A home is being erected which will contain a maternity ward. Last year nineteen nurses attended.

THE TRAINING SCHOOL OF THE PROVIDENT HOSPITAL is located at Twenty-ninth Street and Dearborn. Its object is to open a new field for colored women. The course covers eighteen months. Last year ten nurses attended, but many more were refused for lack of room.

THE NURSES' TRAINING SCHOOL OF BETHESDA HOME is one department of the Home. It is located at 30-32 Belden Place. The service covers two years.

THE CHICAGO COLLEGE OF PHARMACY, Nos. 465 and 467 State Street.

It was incorporated in 1859 and is controlled by the druggists of Chicago for purely educational purposes.

The sole income is from tuition received from the students.

NORTHWESTERN UNIVERSITY COLLEGE OF PHARMACY.—A new building has been recently erected at Dearborn and Twenty-fourth Streets.

THE CHICAGO VETERINARY COLLEGE was established in 1883, and incorporated under the laws of the State of Illinois.

It was first opened on Twelfth Street, near State Street, and its present building at 2537 State Street, was erected in 1886.

It is a private institution and is controlled by three trustees, the balance of the faculty being salaried.

The degree has been recently changed from Doctor of Veterinary Science to Doctor of Comparative Medicine.

The course extends over two years and is largely comparative, including all the lower animals and much of human medicine.

The number of students in attendance during the last session were 175.

REQUIREMENTS FOR GRADUATION.

1.*A good moral character and having attained the age of twenty-one years.

*Students will be admitted upon their attaining the age of seventeen years, and may pass the examinations as minors, but their diplomas will be withheld until they arrive at their majority.

2. Having attended two courses of lectures with dissections, the last course must be in this college.

3. Graduates in medicine will be required to attend one full course of lectures with dissections.

4. Documentary evidence, entitling the candidate to allowances, must be produced at the time application is made to the Registrar.

5. Examinations will be written and oral, and each candidate for graduation must maintain an honorable standing in each department.

HOSPITALS.

THE COOK COUNTY HOSPITAL was founded in 1865, and located at the corner of Arnold and Eighteenth Streets. Later it was moved to its present location on West Harrison Street, where it occupies an entire block.

It is under the control of the county authorities and treats all classes of cases except infectious diseases, free of charge. The county morgue and detention hospital are annexed to the hospital proper.

The institution contains 550 beds, but there are usually over 700 patients in the wards, the convalescents occupying mattresses on the floor.

ALEXIAN BROTHERS' HOSPITAL, 569 N. Market Street. The hospital is under the control of the order of Alexian Brothers, and was first located at the corner of Dearborn and Schiller Streets in 1886. In 1868 a building was erected on the present site of the hospital. This was burned in the fire of 1871, and the present building erected in 1872.

The hospital is for men only, and is entirely charitable, the income from pay patients being applied to the care of the poor.

AUGUSTANA HOSPITAL, 151 Lincoln Avenue.

The institution is under the control of the Augustana Synod of the Evangelical Swedish Lutheran church. It was founded in 1884, and an addition has just been added.

The capacity is 122 patients. All curable cases of non-contagious diseases are admitted.

THE MERCY HOSPITAL is located at Calumet Avenue and Twenty-sixth Street. It was founded in 1848, by the "The Sisters of Mercy," "to care for the sick."

It is under the control of the Catholic church, and is self-supporting from charge to patients.

THE CHICAGO CHARITY HOSPITAL is located at 2407 Dearborn Avenue. It was opened in 1891.

The cardinal principle of the institution is that no patient can be admitted who can afford to pay for treatment elsewhere.

THE CHICAGO CHILDREN'S HOSPITAL was incorporated in 1890. It is located at 91 Heine Street.

Children between two and fourteen years suffering from acute non-contagious diseases, either medical or surgical are admitted.

THE CHICAGO HOSPITAL FOR WOMEN AND CHILDREN was established May 8, 1865, and opened on the

corner of Rush and Indiana Streets. After being moved a number of times, and burned by the fire of 1871, it was finally located on its present site, at the corner of Adams and Paulina Streets.

It will accommodate eighty patients, and admits respectable women and children suffering from any disease not contagious or incurable.

THE CHICAGO PASTEUR INSTITUTE is located at 65 Randolph Street. It is for the preventive treatment of hydrophobia by the Pasteur method.

THE CHICAGO SMALL-POX HOSPITAL is located at California Avenue and Twenty-sixth Street. It was built in 1873 to meet the demands of the epidemic then raging. It accommodates 300 patients.

The nursing is done by the sisters of the order of the "Poor Handmaids of Jesus."

THE CHICAGO THROAT, NOSE AND EAR HOSPITAL is located at 3208 Prairie Avenue.

It was established in 1890 for the surgical treatment of diseases of the mouth, throat, nose, face and ear.

It contains ten beds and admits all classes of patients suffering from the diseases for which it is established.

THE LINCOLN PARK SANITARIUM for babies is located on the lake shore in Lincoln Park. It was built by funds raised by the *Daily News*.

It admits babies and infants during the day, and in case of severe illness sometimes keeps them over night. Contagious diseases are excluded.

THE EMERGENCY HOSPITAL is located at 192 E. Superior Street. It was established in 1886 to care for the sick and suffering in a becoming manner. It is under the control of the Evangelical Lutheran church, and is supported by voluntary contributions and by such patients as are able to pay for the services rendered.

THE GERMAN HOSPITAL was incorporated in 1883 and opened in a house on Lincoln Avenue. The building now occupied was completed in 1888 and is located at 754 and 756 Larrabee Street.

There are accommodations for ninety patients. No chronic or contagious diseases are admitted.

THE MAURICE PORTER MEMORIAL HOSPITAL is located at 606 Fullerton Avenue. It is exclusively for the free care of children between three and thirteen years. No incurable or contagious cases admitted.

MICHAEL REESE HOSPITAL, corner Twenty-ninth Street and Groveland Avenue.

This hospital is under the control of the United Hebrew Charities. It admits all classes of non-contagious diseases.

THE NATIONAL TEMPERANCE HOSPITAL, 1619 Diversey Avenue, was incorporated in 1884, "to demonstrate the successful treatment of diseases without alcohol." It admits all acute non-contagious diseases.

THE PRESBYTERIAN HOSPITAL, corner Wood and Congress Streets, was organized in 1893. It has a maternity ward at the corner of Congress and Hermitage Avenue, and a Convalescent Hospital at 289 Hermitage Avenue.

The hospital contains 250 beds and admits all classes of cases except contagious diseases. It is under the direction of the Presbyterian churches of Chicago, though no distinction is made in regard to creed or race.

THE PROVIDENT HOSPITAL is located at 2900 Dearborn Avenue. It was incorporated in 1891, and has for its object the care of the sick poor without regard to sect, creed or nationality, but it was especially designed for the sick of the colored race.

THE RAILWAY BROTHERHOOD HOSPITAL ASSOCIATION; hospital is located at 295 S. Paulina Street, temporarily. It has two well equipped ambulances.

ST. ELIZABETH HOSPITAL, corner Davis and Thompson Street. It was established in 1887, and is under the sole control of "The Poor Handmaids of Jesus Christ." A new wing was added to the hospital last year, making its present capacity 250 beds. It has one of the finest and best equipped operating rooms in the city. All classes of non-contagious diseases are admitted.

ST. JOSEPH'S HOSPITAL is situated at 360 Garfield Avenue. It was established in 1871 by the Sisters of Charity and is under their control.

All classes of acute non-contagious diseases are admitted. The capacity of the hospital is 250 beds.

ST. LUKE'S FREE HOSPITAL is located at 1434 Indiana Avenue. It was started during the war by a number of benevolent ladies for the care of sick prisoners and soldiers.

It is now under Episcopalian control but no distinction is made in creed, sex or nationality.

THE WOMAN'S HOSPITAL is located at the corner of Rhodes Avenue and Thirty-second Street. It was founded in 1870, and is especially devoted to the treatment of diseases peculiar to women, irrespective of creed or race.

THE EMERGENCY HOSPITAL of the World's Columbian Exposition is located in Jackson Park. It is for the care of the sick or injured employes and visitors at the Columbian Exposition. The bureau was organized June 1, 1891. The hospital contains thirty-three beds. No charge is made to patients, but none will be kept over night, being sent to the city hospitals if necessary.

THE WESLEY HOSPITAL, corner Twenty-fifth and Dearborn Streets, was incorporated in 1888.

It is for the gratuitous treatment of the medicinal and surgical diseases of the poor. It is controlled by the Methodist Episcopal church, but no distinction is made in creed or race.

THE HOME FOR INCURABLES was incorporated in

1887. It is located on Ellis Avenue between Fifty-fifth and Fifty-sixth Streets.

It provides a home for non-infectious incurable diseases, except insanity.

There are accommodations for 107 patients and both males and females are admitted. It is entirely supported by endowments.

THE COOK COUNTY INSANE ASYLUM is located at Dunning, Ill. Its object is "to care for the insane of Cook county not cared for elsewhere." It is controlled by the Cook county commissioners.

The average number of inmates last year was 1,015.

THE ILLINOIS CHARITABLE EYE AND EAR INFIRMARY, corner Peoria and Adams Streets, was founded in 1858.

It furnishes gratuitous board, and medical and surgical treatment for all indigent residents of Illinois who have diseases of the eye or ear. Legal certificates of indigence are required of all to whom board and lodging is given.

THE WASHINGTONIAN HOME, 556 and 572 W. Madison Street, Chicago. Female branch Martha Washington Home, corner Western and Graceland Avenues.

The institution was established in 1864 for the care, cure and reclamation of inebriates of both sexes.

It accommodates 125 patients.

It is controlled by the Washingtonian Home Association and managed by thirty directors who are chosen by the association.

DISPENSARIES.

ALEXIAN BROS. HOSPITAL DISPENSARY, 569 N. Market Street, in the hospital.

ARMOUR MISSION DISPENSARY, Thirty-third Street and Armour Avenue.

CENTRAL FREE DISPENSARY, corner Wood and Harrison Streets, in Rush Medical College.

CHICAGO POLICLINIC DISPENSARY, 174 and 176 E. Chicago Avenue, in the Polyclinic building.

CHICAGO & NORTHWESTERN R. R. DISPENSARY, 56 E. Kinzie Street.

GERMAN HOSPITAL DISPENSARY, 754 and 756 Larabee, in the hospital building.

WOMEN AND CHILDREN'S HOSPITAL DISPENSARY, corner Adams and Paulina Streets, in the hospital building.

ILLINOIS CHARITABLE EYE AND EAR DISPENSARY 121 S. Peoria Street, in the eye and ear infirmary building.

KIRKLAND MISSION DISPENSARY, 111 S. Halsted Street.

LINCOLN STREET DISPENSARY, 333 Lincoln Street, in Woman's Medical College building.

MICHAEL REESE HOSPITAL DISPENSARY, Groveland Park Avenue and Twenty-ninth Street, in the hospital building.

NATIONAL TEMPERANCE HOSPITAL DISPENSARY, 1619 Diversey Avenue, in the hospital building.

NORTH STAR DISPENSARY, 192 Superior Street, in the Emergency hospital building.

SOUTH SIDE FREE DISPENSARY, Twenty-sixth and Prairie Avenue, in the Chicago Medical College building.

ST. LUKE'S FREE HOSPITAL DISPENSARY, 1434 Indiana Avenue, in the St. Luke's Hospital building.

THE GOOD SAMARITAN DISPENSARY, 4057 Wentworth Avenue.

WEST SIDE FREE DISPENSARY, 315 Honore Street, in the College of Physicians and Surgeons building.

W. C. T. U. FREE MEDICAL DISPENSARY, 870 W. Madison Street.

WOMAN'S HOSPITAL DISPENSARY, Rhodes Avenue and Thirty-second Street, in the Woman's Hospital building.

CHICAGO HEBREW MISSION FREE DISPENSARY, corner Margaret and Henry Streets.

THE POST-GRADUATE MEDICAL COLLEGE DISPENSARY, 817 W. Harrison Street, in the college building.

THE COOK COUNTY AGENTS' OFFICE is located at 129 S. Clinton Street.

Here those in urgent need are given medical or surgical relief. Less urgent cases are sent to the Central Free Dispensary, the County Hospital or the Infirmary at Dunning, according to their needs.

CHICAGO MEDICAL SOCIETIES.

CHICAGO MEDICAL SOCIETY.—Organized April 5, 1852, as the Cook County Medical Society, and changed to its present name in 1858.

Meetings are held every Monday at the Schiller Building.

Any physician of good standing in the profession shall be eligible for membership. Initiation fee, two dollars; annual dues, three dollars.

CHICAGO GYNECOLOGICAL SOCIETY.—Organized in 1878, chartered in 1880. Membership limited to twenty.

The meetings are held the third Friday of each month at the Grand Pacific Hotel.

THE CHICAGO MEDICO-LEGAL SOCIETY.—Any regu-

lar practitioner of medicine, or lawyer in good standing may, upon the recommendation of the executive committee, become a member of the society by the payment of five dollars initiation fees and signing the constitution, provided four-fifths of the members present vote in his favor.

Annual dues, five dollars.

Meetings are held on the first Saturday in June, September, December and March, in the Great Northern Hotel.

THE CHICAGO PATHOLOGICAL SOCIETY.—Meetings on the second Monday of each month at Hammond Library, corner Warren and Ashland Avenues.

Candidates for membership must present sufficient evidence of professional standing.

SCANDINAVIAN MEDICAL SOCIETY, CHICAGO.—Organized 1887.

Any regular Scandinavian physician in good standing in the United States is eligible for membership. Meetings the third Wednesday of each month at the Sherman House.

UNION MEDICAL SOCIETY OF ENGLEWOOD.—Organized 1887.

Any reputable physician holding a certificate to practice from the Illinois State Board of Health shall be eligible for membership, and may become a member on recommendation of a majority of those present.

THE PATHOLOGICAL SECTION OF THE ACADEMY OF SCIENCES.—Organized in 1892 by some of the younger members of the medical profession who were dissatisfied with the older medical societies and wished to form a society which should look more to the scientific aspects of medicine.

Regular meetings are held the first Thursday of each month.

Candidates for admission are required to present evidences of membership in the Academy, and submit a thesis embodying the results of original research.

The society soon expects to establish a pathological museum and a library.

Initiation fee, ten dollars; annual dues, five dollars.

THE CHICAGO ACADEMY OF MEDICINE, Dr. J. G. Kiernan, secretary, meets at the Saratoga Hotel the second Friday evening of each month.

MEDICAL CLUBS.

PRACTITIONERS' CLUB.—Organized 1891. Limit of membership, 200.

Any male member of the regular medical profession in good standing, having been a practitioner for five years, or a former practitioner now following a dental specialty, shall be eligible for membership, provided his application is duly certified by two members and placed in the secretary's hands together with the membership fee of two dollars, and provided his membership is accepted by the executive board.

Annual dues, three dollars.

Meetings held on or about the last day of each month.

THE SOUTH SIDE MEDICAL CLUB.—Organized in 1891.

Any genial and tolerant physician may become a member on approval of the executive committee.

A dinner is held the last Friday of each month, followed by short talks.

THE CORONER'S OFFICE OF COOK COUNTY.

The coroner's office has jurisdiction over all cases of violent death and cases dying without medical attendance. It is as old as the county, and at first was attended to by the coroner alone. With the increase in population the force has grown until it now consists of a coroner, nine deputy coroners, a physician, two clerks and two morgue keepers. Mr. James McHale is coroner, Mr. William F. Quinn chief deputy, and Dr. Louis J. Mitchell coroner's physician.

The county morgue is situated back of the County Hospital and on the same lot. It cost \$30,000 and is thought to be the most complete in this country. It consists of an office building 46x56 feet and three stories in height, and the morgue proper or exhibit room, 40x46 feet and 18 feet high. The office building contains dressing rooms, bath rooms, laboratory, offices, jury rooms, sleeping apartments and a necropsy theater.

The morgue proper is lined with enameled brick, with a tile floor and a sheet steel ceiling. It will accommodate forty-eight bodies on trucks in glass cases, which are preserved by means of the cold storage process and keep perfectly for months.

As the county covers so much territory, branch morgues have been established in undertaking establishments at various points—three in the city proper and one each in Evanston, Pullman and South Chicago, all suburbs of Chicago.

MEDICAL PUBLICATIONS.

"The Chicago Medical Review," Dr. G. H. Cleveland, Editor.

"The Chicago Medical Recorder," Dr. A. Church, Editor.

"The Journal of the American Medical Association," Dr. J. C. Culbertson, Editor.

"The Medical Standard," Dr. J. G. Kiernan, Editor.

"The North American Practitioner," Dr. Sawyer Brown, Editor; Dr. L. J. Mitchell, Associate Editor.

"The Western Medical Reporter," Dr. J. E. Harper, Editor; Dr. G. F. Lydston, Associate Editor.

WORLD'S FAIR BUREAU OF INFORMATION FOR PHYSICIANS.

In common with other people, there will be hundreds and thousands of physicians who will visit the World's Fair, many of whom will desire to remain for one or more weeks. For the accommodation of such visitors, Messrs. Truax, Greene & Co., of 75-77 Wabash Avenue, have opened a reception room, in which will be found a list of hotels and apartment

houses, with location and rates. We have been at pains to carefully go over this list, and find the references are to good and reputable places and where the prices are reasonable. Further information will be cheerfully given by this enterprising firm.

POINTS OF SIMILARITY BETWEEN US AND HOMŒOPATHIC PHYSICIANS.

The Annual Address of the President of the Philadelphia County Medical Society for 1892. Read May 21, 1893.

BY JOHN B. ROBERTS, A.M., M.D.

In the address which I had the honor of delivering from the presidential chair a year ago, I gave it as my opinion that this society should be liberal enough to accept as a member any physician whose education and personal character made him a fit associate for intelligent men. I stated my belief that the test of qualification for membership should not be the college from which the applicant received his diploma; but an education enabling him to understand and appreciate the science of medicine, and an honest purpose to treat his patients by all means and methods which experience, investigation and research show to be serviceable. It seemed to me then, as it does now, that such a physician's political, religious or social belief and affiliations should not disqualify him, nor should his opinion that in "similar" he sometimes finds a remedy of value.

Following out this line of thought, I have undertaken an investigation to determine whether there are any points of similarity between us, who decline to receive any sectarian designation, and those who accept for themselves the name of homœopathic physician. This study has interested me very much, and it is my purpose to lay some of the results before the society this evening.

None will deny the fact that as a class we, as well as they, are law-abiding citizens, whose culture, intelligence and wealth add to the intellectual and financial prosperity of the districts in which we live. The doctors of village, town or city, are ever respected by the community, and their counsel is sought in many emergencies not strictly medical. This deferential courtesy is extended to all honorable and skillful physicians, without thought as to their belief in, or rejection of, the law of similars. In this amenity of civilized society, then, there exists no difference between us and our homœopathic neighbors. Our mutual social relations also teach us that there should be none. We meet each other in drawing-room, mart or amusement hall, to find no difference in courtesy, refinement or large-hearted charity. How often do we meet a homœopathic friend with the heartiest of handshakes, because we honor him as a man and love him as a friend. The grasp returned shows that the respect and affection are fully reciprocated.

Much to be regretted is it that a marked similarity exists between the ignorant and half-educated graduates of all kinds of medical colleges. We do not hold a monopoly in the graduation of men who tell State Boards of Medical Examiners that the boiling point of Fahrenheit is "about 300°;" that the "average respirations are 70 per minute," and that the same disease is called pneumonia when it affects one lung, pleurisy when it affects the other. The ignorant and reckless doctor will always be a menace to the public health, whether he decline or accept

the designation "homœopathic." The greater damage is probably done by our half educated graduates, because the number of homœopathic medical colleges in Canada and the United States is only twenty-six, whereas we have 220. From these colleges there graduated in 1890, only 391 homœopathic physicians, while our colleges sent out 4,237. The number of medical matriculates in the United States and Canada during the decade from 1880 to 1890 was, in our own colleges, 115,355. The number of graduates was 35,655. The number of matriculates in the homœopathic colleges during the same decade was 11,366; the number of graduates, 3,883. The percentage of graduates to matriculates in our schools was 30.9; in the homœopathic schools, 34. These tables, taken from the statistics compiled by the Illinois State Board of Health,¹ would seem to show that the ratio between the number of students and the persons granted degrees was nearly the same in both classes of medical colleges.

As many medical colleges are commercial associations to manufacture doctors as rapidly and cheaply as possible, it is apparent that their output will be ignorant physicians, whose individual beliefs as to the laws or methods of therapeutics will do little to protect the public from malpractice and criminal medical ignorance. The high grade medical colleges have recognized the fact that the cure for this public wrong is the establishment of State Boards of Medical Examiners, whose examination alone shall determine the qualifications of the applicant for license to practice. It is gratifying to know that we and the most highly educated homœopathic physicians in the various States agree on the necessity for such State laws. It is true, however, that a number of our medical schools (University of Pennsylvania, University of Michigan, Harvard University, Woman's Medical College of Pennsylvania, and perhaps one or two others) now require four annual courses of college lectures before the student can obtain his degree; and that only one homœopathic college (Boston University School of Medicine), so far as I know, demands this high standard. It is to be hoped that more colleges will soon follow this movement to elevate the standard of medical education.

The text books for students recommended in official announcements afford instructive evidence of the similarity in teaching given the four or five thousand graduates coming annually from the two kinds of medical colleges. The announcement of the Hahnemann Medical College of Philadelphia for 1891-92 shows that a great proportion of the works recommended are the same as those we advise our students to purchase. Leidy's Anatomy, Tyson's Urinary Analysis, United States Pharmacopœia, Mann's Prescription Writing, the Stillé and Maisch Dispensatory, Wood's Therapeutics, Pepper's System of Medicine, Gross's Surgery, Agnew's Surgery, Playfair's Obstetrics, Duhring on Diseases of the Skin, Reese's Medical Jurisprudence and Gould's Dictionary occupy no less conspicuous positions in the list there found than in the announcements of our own colleges.

What I have said shows clearly enough that the material out of which medical students are made, and the college training by which they are developed into medical practitioners are very similar, whether the intending doctor expects to become a physician

¹ Medical Education, etc., Springfield, 1891, pp. 24 and 31.

without a sectarian title or hopes to belong to the ranks of homœopathic medicine. The students are gentle or boorish, earnest or slothful, intelligent or dull, ignorant or wise, in about the same proportion. They study many of the same books, live in the same boarding-houses, have the same pleasures and trials, and make much the same kind of doctors. The educated, true and earnest are capable of bringing manifold blessings into the sick-room; the ignorant, false and careless do infinite harm to the public—the public which, in Pennsylvania, has no protection from such dangers, since the State has not as yet thought it worth while to weed out the grossly ignorant and incompetent by a State examination and license.

A very striking similarity between us and our homœopathic neighbors is the latitude of opinion exercised in the choice and administration of drugs. Many thoughtless persons believe that we give only large doses, the homœopaths only small ones; that we do not use powders or triturations; that they do not write prescriptions, or administer alcohol or opium. Nothing is easier than to show the fallacy of these statements.

Every member of this society knows that any attempt to restrict one of us to the use of certain medicines or methods of treatment, or to the employment of any stated size of dose, would result in the immediate rupture and destruction of the society. Such interference with individual liberty would not be tolerated. Everything and anything that I believe will aid my patient I must have full liberty to use. No organization has the right to say what drug or what medicinal dose I or you shall employ in the treatment of disease. The whole field of science, medical and collateral, is utilized in our endeavor to relieve and cure disease. We are bound by no therapeutic law of "similars," or of "dissimilars;" we never have been and never can be. We follow the authority of no man, and are bound by no dogmas; but with full liberty of conscience we act as individuals responsible to no other human agent. This phase of our position is often misunderstood by the public. It was, however, clearly stated ten or a dozen years ago in the deliberately written words of the American Medical Association, which, in speaking of a similar topic, said: "Neither is there any other article or clause of the said Code of Ethics that interferes with the exercise of the most perfect liberty of individual opinion and practice."²

The homœopathic practitioner of to-day, as a rule, feels the same liberty as we do, but believes in what he calls the law of similars being a good indication as to the choice of remedies.

Neither we nor they, unless it be isolated individuals, base our practice on "an exclusive dogma, to the rejection of the accumulated experience of the profession, and of the aids actually furnished by anatomy, physiology, pathology, and organic histology."

If the action of homœopathic medical societies, of homœopathic medical journals and the spoken and written statements of homœopathic physicians are examined, it is evident that very many of those whom the public regards as homœopaths have comparatively little faith in the infinitesimal doses of Hahnemann, or in the infallibility or universality of his law. The gentlemen represented in or by these so-

cieties, journals, and statements have, it would seem, a belief in the more or less frequent value of the "law of similars" in treating diseases, but admit that cases, more or less frequently, require the doctor to use non-homœopathic methods if he is conscientiously to do the best thing possible for his patient. In the words of a resolution passed by the Homœopathic Medical Society of the County of New York, on February 8, 1878, the belief in the law of similars "does not debar us (homœopathic physicians) from recognizing and making use of the results of any experience, and we shall exercise and defend the inviolable right of every educated physician to make practical use of any established principle of medical science, or of any therapeutic facts founded on experiments and verified by experience, so far as in his individual judgment they shall tend to promote the welfare of those under his professional care."³ This statement corresponds with the attitude and practice of us who, as non-sectarians, believe in the science and art of medicine; and would render the subscribers to it eligible for membership in the American Medical Association, the Medical Society of the State of Pennsylvania, or the Philadelphia County Medical Society.

Dr. Joseph Kidd and Dr. W. H. Holcombe, well-known homœopathic writers, believe, with the members of the New York Homœopathic Society, that everything and every method which cures should be utilized, even by those believing in the law of similars as a valuable indication in therapeutics. Dr. Holcombe says a physician professing belief in the homœopathic law is not obliged to limit his practice strictly to the application of that law, but claims everything which cures. Dr. Kidd, who held a position in the London Homœopathic College, made a similar statement.

I think I am justified in the statement that to-day there is comparatively little belief in, or practice of, homœopathy as advocated by Hahnemann. There is no doubt that a few homœopaths, represented by Dr. Berridge, the late Dr. Lippe and Dr. Neidhard believe, or at least did believe, in the infinitesimal doses of Hahnemann and the universality of his law of similars, the truth of which two points is, according to Neidhard, "identical"; but I am inclined to think that the great majority of physicians considering themselves homœopaths reject the idea that diminishing the dose increases the power of any drug. Of these all, or nearly all, give only a modified assent to the law of similars; believing that it is often, perhaps very often, a good rule to follow in selecting a remedy, but that many diseased conditions are best treated by remedies not selected in a homœopathic way. Very many quotations could be made to support my position.

It seems to me that the physicians recognized by the public as homœopaths consist of two classes: First, a small number who adhere to Hahnemann's teachings, which seem to me to be not founded on good evidence, and therefore unscientific and unworthy of credence. Secondly, an increasingly large number who, while entirely rejecting the doctrine of increased power being given drugs by dilution, still have some belief in the law of similars. These last do not wholly rely upon the homœopathic law or

² This quotation is extracted from a criticism of the resolution contained in a "Declaration of Homœopathic Principles" published in *The Organon*, Liverpool, April, 1878.

³ *University of the Homœopathic Law of Cure*, pp. 29-34.

methods in treating disease, as presented to them in daily practice. It is probable that in many cases a drug originally suggested for a certain disease by a homœopathic text-book or authority is used when that condition is to be treated, without much thought being given to the law; though the drug is administered in powder or pellets, or in a tumbler of water. If this be true, it corresponds with the practice of many of us non-sectarian physicians, who use powders, small pills and solutions advocated by well-known authors and teachers without pausing to inquire the reason for our faith in, and use of them.

Many homœopathic physicians have their libraries well stocked with journals and text books edited and written by non-sectarian physicians, who, of course, repudiate Hahnemann's teachings. Various remedies are advocated in these works for the diseases which doctors are called upon to treat. It seems to me probable that homœopaths consult these books in their libraries and select from the drugs therein recommended such as seem to them to be instances conforming to the law of similars. My opinion is confirmed by a recent review in a homœopathic journal,⁵ of a book written by a non-sectarian physician. It says of the book: "The doses are generally larger than would be called for, but the suggestive character of the prescriptions will often give excellent hints to meet individual cases." This is very far from being the practice of homœopathy as Hahnemann taught it; but it is not unlike scientific medicine, which aims to select such remedies as will correct those morbid disturbances and changes in the organs and tissues which are the essence of the disease. In a similar manner many of the text-books used in homœopathic medical colleges are written by those who deny the truth of homœopathy.

Dr. James B. Bell, President of the International Hahnemannian Association, in his address last June, said: "Our society numbers in active living members about 150, and it would be a generous estimate, I think, to double that number, as representing in the whole world all those who may be called true Hahnemannians or who are becoming such. If we have patients going to other cities, especially in the West and South, how rarely can we recommend a physician to them, and if the patients are going to Europe or England, we know of but five or six men in the great cities to whom we can safely intrust them."

Such a statement, coming from an evidently reliable homœopathic source, convinces me that the great majority of homœopathic physicians are very like ourselves in their means and methods of treating disease.

We believe, with Rokitansky, that the basis of medical treatment is a knowledge of the morbid disturbances and changes in the tissues and organs. The real homœopathy, if I read Hahnemann and his followers aright, pays no attention to the microscopic and chemical changes in tissues and organs, but believes in selecting a remedy which by "proving" causes symptoms similar to, but not identical with, "the totality of the symptoms seen in the patient."

The great body, then, of homœopathic practitioners, if Dr. Bell is correct, use any drug, administered in any way that seems to them likely to be beneficial. They are, however, called homœopaths, because they have a belief in the partial value of a law of simi-

lars, and because non-sectarian physicians usually decline medical association with them. All of these physicians ought to be accepted by us as eligible for professional association and consultation, since they are willing to use any and all methods, and are bound by no exclusive dogma or law. Their preference for remedies selected according to what they consider a good rule in many cases does not impeach their general intelligence or their value to the community any more than the differing opinions of many in our own ranks on other medical topics.

That the tendency of homœopaths is to drop Hahnemann's views and come nearer and nearer to scientific medicine, is well shown in a recent work of Professor Theodor Bakody, a homœopathist of Buda-Pesth.⁷ He says: "The dilution of medicine should not be carried to a point beyond scientific recognition;" and "I do not consider the biological medical therapeutics of Hahnemann a universal one, inasmuch as it covers only that department of practical activity where medicinal therapeutic causal cures can be effected." These views were expressed by him in 1873, and were still his views when the volume was written. A further quotation will show how near he is coming to our views in medicine: "In making drug-provings we should not be satisfied with the manifestations of mere subjective or general functional symptoms, but in accordance with the scientific knowledge of our day also include in the field of our observations the finer pathological, physiological, anatomical, and chemical manifestations."

This method of finding out the action of drugs is indeed scientific, and different from the method of Hahnemann, his immediate followers and present imitators. Compare, for example, Hahnemann's *Materia Medica Pura*, translated by R. E. Dudgeon, M.D., with annotations by Richard Hughes, L.R.C.P.E., Liverpool, 1880.

An indirect evidence of this decadence of belief in Hahnemann's homœopathy is the effort of many homœopaths to explain away the inconsistency of their practice with homœopathic doctrines. Dr. Charles S. Mack, of Ann Arbor, affords curious corroboration on this point.⁸ He says that the homœopathic laws of similars is "the law and the only possible law of cure," but that there are various principles "upon which useful, though not curative, treatment may be based." He says that iron, lime, demulcent drinks, stimulants, and germ-destroying agents may be useful though not homœopathically indicated, and may lead to the recovery of the patient. This, however, he regards not as a cure but a recovery. It is difficult for me to see the difference as far as the patient is concerned, even though Dr. Mack says (p. 75) that he finds "no impropriety in limiting the meaning which *cure* shall have while considering the claim of *similia*." In other words, he justifies his belief in the homœopathic law of similia as the *only curative* treatment of disease by excluding all cases of patients who recover under non-homœopathic methods of treatment. The latter *recover* but are not *cured*. When asked if he would use a chemical antidote to a chemical poison which was found to be the cause of the acute disease from which the patient was suffering, he replies that he

⁵ N. Y. Medical Times, January, 1892, p. 309.

⁶ The Homœopathic Physician, Philadelphia, August, 1892.

⁷ Scientific Medicine in its Relation to Homœopathy. Translated by R. F. Bauer, M.D., 1891, pp. 36, 37.

⁸ Philosophy in Homœopathy, Chicago, 1890.

would use such an antidote, but that "even successful treatment with that antidote would not be curative" (p. 123). His faith in the homœopathic law is thus seen to be founded on a hair-splitting of words; and he further says (p. 135), "to-day homœopathists are more than formerly, availing themselves of various practices which are distinctly not homœopathy."

Recent publications in the homœopathic journals indicate the same half-hearted belief in "the law of similars," and the almost total rejection of the doctrine of infinitesimal doses.

Dr. D. A. Gorton, a homœopath not unknown to homœopathists, deprecates⁹ the use of the words "System of Medicine" as applied to homœopathy. He says it is only a system of therapeutics, and states that he is constrained to regard the law of similars as but a fragment in the grand art of curing disease. He thinks that Hahnemann was wrong in regarding homœopathy as destined to supplant all other methods of treatment. He quotes from Hahnemann's *Organon* to show that a true homœopath must never give a laxative, prescribe a warm bath, nor subdue pain with opium; and indicates his belief that few homœopathic physicians are, therefore, true homœopathists in Hahnemann's sense. He expresses doubt whether, out of the eighty or more homœopathic physicians in Brooklyn, twenty could be found capable of rendering in a chronic case or in an obscure acute disease, a sound prescription according to the law of similars (p. 61). He adds (p. 65) that he has known many professedly strict homœopathic physicians to break up ague paroxysms with massive doses of quinine, use caustics in ulcers, and prescribe emetics, cathartics, and sudorifics.

I am quite sure that my hearers will agree with me that we are very like homœopaths in the treatment of disease, if these homœopathic writers give a truthful account of the methods employed by themselves and their colleagues. These statements, moreover, are substantiated by other writers, who speak in a similar strain.

A well known journal,¹⁰ edited by believers in homœopathy, in a recent editorial made the following statement: "It is apparent to even the casual observer, that scientific study is rapidly bringing all schools more in harmony with each other, and while it eliminates more and more the theoretical and conjectural, is building up a scientific therapeutics based upon the unanswerable logic of facts, the general outline of which will be acceptable to all."

The same journal suggests (p. 51) that if the societies composed of non-sectarian physicians revise their by-laws so that physicians now called homœopaths may be eligible for membership, the next move should be for the homœopathic medical societies to drop the sectarian name. Could anything show better than this suggestion the slight hold homœopathy has upon many of the supposed followers of Samuel Hahnemann?

The *Northwestern Journal of Homœopathy* says: "The practitioners of homœopathy forty years ago who are now living can scarcely recognize the merchantable article called homœopathy at the present day,"¹¹ and asserts that the number of doctors who "really practice homœopathy are very few compared with the proportions who did so forty years ago."

The *Homœopathic News* for March, 1892, says editorially: "We venture to assert that had not our school drifted away from the practice of forty years ago, it would have been dead and buried long since." Continuing, this recognized journal of homœopathy says:

"We have drifted away from the practice of giving a pellet of the two-hundredth or higher, and waiting thirty or sixty days for its curative effects; from the prescribing of a high dilution by smelling the dry pellets, those same pellets 'grafted' by shaking a thousand pure pellets with one medicated by the ten thousandth.

"We have drifted away from a belief in provings made by taking a single dose of the one-thousandth, thirtieth, or third even, and then recording all the symptoms felt by the prover—natural symptoms, colds, diarrhœa, etc., for the next sixty days!

"We have drifted away from the carrying a pocket repertory to the bedside of the patient, and recording the symptoms in columns, and a weary search in said repertory until a mechanical similitum was found.

"We have drifted away from the days when our pseudo-surgery was a disgraceful farce, when we expected silica to open a felon, or hepar sulphur to lance an abscess.

"We have drifted away from the narration of miraculous cures with the highest attenuations, which were not cures at all, but a spontaneous finale of a self-limited disease.

"We have drifted from the days when our practitioners would sit by the bedside of a woman dying of uterine hemorrhage, hunting in a repertory for the 'indicated remedy,' while the vital fluid was ebbing away, without recourse to the tampon or ergot."

Dr. Conrad Wesselhoeft, in a paper read before the Southern Homœopathic Medical Association,¹² admits that homœopathists, in order to join the ranks of a united medical profession, may "have to recede somewhat from the too premature axiom of the universality and infallibility of our law of similars." He apparently signifies his assent to this necessity.

In an article on "Defects and Limitations of the *Materia Medica Homœopatica*," a writer, who is a homœopathist, discusses¹³ the difficulty of selecting the proper remedy, because of the possibility of the patient not detailing symptoms accurately, and of the inaccuracy of some of the drug effects attributed to remedies. He makes this pertinent statement:

"It is not too much to say that clinical experience does not verify the half of the symptoms to be found in Allen's mammoth collation of materia medica, and, like the man who never speaks but half the truth, one is left to wonder which half of the recorded symptoms is true and which is false. Many of the prominent drugs in the materia medica were proved, as our correspondent says, in the thirtieth potency—that is to say, in the decillionth dilution. What manner of man must he be who can believe that there is an atom of drug in a drop of that dilution, or the least degree of drug force!"

The unreliability of homœopathic "provings" and of the derived "pathogenesy" of drugs is here admitted even by a believer in the law of similars. The *Hahnemannian Monthly*, whose homœopathic ortho-

⁹ The Drift of Medical Philosophy, revised edition, 1875, pp. 56 and 70.

¹⁰ New York Medical Times, May, 1892, p. 48.

¹¹ Reprinted in New York Medical Times, May, 1892, p. 55.

¹² New York Medical Times, January, 1892, p. 313.

¹³ New York Medical Times, November, 1891, p. 225.

doxy will, I presume not be impeached, publishes an article¹³ by Dr. J. P. Dake, in which the author says: "But the reliability of pathogenesis has not suffered alone from such causes. Some drug-provers have undertaken to note symptoms produced by doses in which there was no probability, hardly a possibility, of the least drug influences; and some have passed by a great number of articles, having promise of medicinal power and usefulness, to prove some that are eminently disgusting as well as useless."

Even Charles Neidhard has written: "For some peculiar diseases the homœopathic law requires us to give large doses."¹⁴

This rather lengthy series of quotations from homœopathic writers has been made to establish my point that we and most of them are for all practical purposes, similar and at one. They, as well as we, are free to choose whatsoever is thought to be the proper remedy for a diseased condition, and to give it in whatsoever dose is considered curative. Speculation as to the manner of action of a remedy or the best method of selecting it is only interesting from a philosophical point of view. Difference of opinion in such matters makes us no less like them than it makes me different from such members of this society as believe pulmonary consumption to be of nervous origin, or from those who consider aseptic trephining a dangerous operation.

Another point of similarity between the members of the Philadelphia County Medical Society and the homœopathic practitioners of this city and State is, that much attention is given by both to hygienic and dietetic measures in the management and treatment of the sick. The value of a faithful study of these departments of medical science is admitted by all intelligent practitioners. Again, all of us believe that much priceless information has been gained by investigations into the effects of drugs upon the healthy human organism. That the results of such study can be utilized in the treatment of disease is averred by writers such as Wood, Bartholow, and Hare in our ranks, and by the homœopathic authorities, Dake, Farrington, and Hughes.

When our patients are suffering from symptoms which can not be removed by any known means, or from diseases which experience has shown to be at present incurable, we and they resort to palliative measures. Remedies which lessen suffering and prolong life, even if they have not the least curative effect on the symptoms or disease, are often administered by you and me and our homœopathic neighbor. Opium, one of the most conspicuous of these drugs, is alike used by us all; and, by the way, serves well to illustrate the fact that even homœopaths do not rigidly adhere to their supposed custom of administering remedies singly. It, as we all know, is a combination of many valuable remedies.

A glance at the catalogues of Boericke & Tafel, known the country over as manufacturers of homœopathic remedies, will prove to you that my statements are well founded. In them are seen price-lists of triturations of opium (1x, 2x, 3x and 6x), (sepia 2x, 3x and 6x), mercurius vivus, silicea, morphium, graphites, and china, as well as of iodoform, podophyllin, rheum and other names more familiar to our ears. It is more than probable that these chemists supply physicians

of all kinds with these triturations, as well as with their one-drop tablets (made from mother tincture) of bryonia alba, aconite, senna and squill.

When Charles J. Hemple wrote in 1874,¹⁵ that constipation was to be treated by rhubarb and Seidlitz powder and advocated the use of morphine in colic, he certainly was not dissimilar from us in this respect, nor we from him. Yet he was a pronounced homœopathist.

I have already indicated by quotations from homœopathic sources that few homœopathic practitioners now believe in the augmentation of the medicinal power of a drug by diminishing the quantity administered. Hahnemann's assertion of the increasing potency of these infinitesimal doses seems to have lost its supporters among homœopathic practitioners. It is needless to say that in this belief we are like them.

The study which resulted in the production of this address has brought me to the same conclusion as that indicated by Dr. Henry O. Marcy, the recent President of the American Medical Association. He says¹⁶ that "homœopathy was born, in a measure, as a protest to indiscriminate heroic dosing with powerful drugs," and that its popular success was partly due to "an unreasoning prejudice in the minds of a narrow conservative leadership" which characterized our predecessors. He intimates that we and the average homœopathic physician are so nearly alike, except in name, that the great body politic of our profession should institute measures to make it easy for such men properly educated to enlist in the grand army of workers devoted to unbiased investigation and the practice of scientific medicine.

Dr. Henry I. Bowditch¹⁷ our distinguished associate, put it even more strongly when he wrote, not many years since, that homœopathy and eclecticism were the legitimate offspring of the absurdities of the medical profession at the time of their advent.

A short time ago a paper on revision of the by-laws of the American Medical Association was read before the Chicago Medical Society by Dr. J. C. Culbertson, the well known editor of the journal of the Association. The action of the society in approving the sentiment of the paper indicates that its members share the views of President Marcy and Dr. Culbertson; for the first important clause of the proposed revised by-laws provides that the members of the American Medical Association "shall be physicians in good standing in the medical profession, who are graduates of reputable medical colleges, and who in every respect conduct themselves as educated physicians and as gentlemen."

If these opinions of such recognized authorities are correct, and I do not doubt it, it is good evidence that, in the course of five or six decades, mutual observation and gradual deviation from our respective original standards have brought us and the homœopaths so near together that the similarities quite outnumber the dissimilarities.

SIR ANDREW CLARK, M.D.—At the last election of the Royal College of Physicians, London, Sir Andrew Clark was re-elected to its chief office. He has been president five years already, and this time the choice was by unanimous vote.

¹³ The Science of Homœopathy, pp. 32, 33.

¹⁶ President's Address, Journal of American Medical Association, June 11, 1892, p. 725.

¹⁷ The Past, Present and Future Treatment of Homœopathy, Eclecticism and Kindred Delusions—Boston, 1857.

¹³ "Reliability in Materia Medica," read before the Southern Homœopathic Medical Association, January, 1892, p. 2.

¹⁴ Universality of the Homœopathic Law of Cure, second edition, p. 30.

SOCIETY PROCEEDINGS.

Illinois State Medical Society.

Abstract of the Proceedings of the Forty-Third Annual Meeting, held in Chicago, May 16, 17 and 18, 1893.

FIRST DAY—MORNING SESSION.

The society convened in the Commandery Hall of the Masonic Temple, and was called to order by the President, Dr. E. Fletcher Ingals of Chicago, at 9.30 A. M.

Prayer was offered by the Rev. H. W. Thomas, LL.D.

Dr. E. F. Ingals of Chicago, chairman of the committee of arrangements, announced that Dr. D. R. Brower would give a reception to the members of the society and their wives at his residence Wednesday evening.

After the transaction of considerable miscellaneous business, Dr. D. R. Brower of Chicago, delivered the address of Section Three. He selected for his subject

THE RELATION OF STATE MEDICINE TO CHOLERA AND TUBERCULOSIS.

He said there was no function of the physician more creditable to him than that which he exercised in the prevention of disease.

Cholera.—Through the researches of Koch, we know that this disease is not contagious; that it is not directly communicable from one person to another through the atmosphere; indeed, that it can develop only by the germ passing into the chylipoetic viscera, and there finding conditions favorable to its development. We know that it can not thrive in an acid medium, and if there is a normal quantity of the normal acids present in the stomach the germ is there destroyed; that it must pass into the intestines, the reaction of which must be alkaline in order that its development may take place. The very first consideration in the prevention of the spread of cholera was the thorough disinfection of the discharges. If a case of cholera should occur among one of our patients, it should be isolated. If the isolation can be made in their own home, it should be done; but if it is not possible by reason of circumstances to secure this isolation, then they should be taken from their dwelling places to some hospital provided for the purpose. Every effort should be made to avoid a panic.

The Prevention of Tuberculosis.—Important as is the prevention of cholera, there was another infectious disease probably as easily preventable, and which was producing vastly greater destruction of human life. Since the records of the Health Department of Chicago had been kept—that is, since 1851—there have been 39,309 deaths from tuberculosis in this city—more than ten times as many as from cholera. The annual mortality for the last two years of Chicago had been close on to 2,500 people. As a means of prophylaxis, efforts should be made to prevent the inhaling of dried and pulverized sputum. This may occur when the ordinary handkerchief is used by a tubercular person. With such handkerchiefs often the dried expectoration may be diffused through the air, and may be inhaled by other people, as well as by the patients themselves, and thereby not only communicate the disease to others, but may also result in the spread of the disease in the patient himself by causing the infection of previously healthy portions of the lungs. Public places occupied by tubercular individuals should be liberally supplied with spit-cups, and in these should be placed disinfectants. We should take care to prevent the introduction into our families of tubercular nurses, governesses, and teachers in boarding schools and in children's homes.

SECTION TWO.—SURGERY, SURGICAL SPECIALTIES AND OBSTETRICS.

Chairman, Dr. Michael Rooney, Quincy.

Secretary, Dr. Everett J. Brown, Decatur.

The first paper read was by Dr. W. W. Jaggard of Chicago, entitled "Puerperal Eclampsia."

Dr. H. McKennan of Paris, read a paper on

SYMPHYSEOTOMY COMPARED WITH ITS SUBSTITUTES, WITH REFERENCE TO A CASE.

The author said a little over a century ago the Italian surgeon Sigault introduced symphyseotomy. Of the first forty-four cases following the introductory operation fifteen women and thirty-two children were lost, while an ununited symphysis, an injured sacro-iliac synchondrosis or a vesicovaginal fistula were not unknown complications. He then reported a case on which he had operated successfully. The experience of the last few years had demonstrated that there should be no objection to symphyseotomy in suitable cases and when properly performed. The pelvic diameters are increased sufficiently to allow the child to pass. The sacro-iliac synchondroses are not interfered with, while the pubic bones reunite with marked rapidity and firmness. The operation is particularly indicated in cases where there are no ankylosed pelvic joints, where there are no obstructive growths and where the antero-posterior pelvic diameters range between two and three-fourths and three and three-fourths inches. It is contra-indicated in either a Robert's or Naegle's pelvis, where the conjugate diameter is less than two and three-fourths inches and where there is a dead fetus. The operation should not be preceded by frequent unsuccessful attempts to deliver with forceps, and it should be done early. Whether the patient be in a tenement house or a well equipped hospital, as soon as the os is sufficiently dilated the operation should be done. Death follows delays and exposures necessarily caused while removing the patient from her home to the hospital.

Dr. George N. Kreider of Springfield, followed with a paper on the same subject, and reported a case which terminated fatally. The speaker regretted the unfortunate termination of the case, as well as the fact that it was performed on a poor subject and not under the best circumstances. His belief in the simplicity of the operation, however, had not been shaken, and should another case arise in his practice where a choice was necessary between it and craniotomy, he would unhesitatingly declare in favor of symphyseotomy. Craniotomy on the living child was an operation very much against the speaker's liking. Dr. Kreider's conclusions were that:

1. Symphyseotomy should be undertaken early.
2. It is not difficult to perform.
3. It is preferable to craniotomy in nearly every case.

Dr. John A. Prince of Springfield, read a paper entitled

PROLAPSUS UTERI WITH RETRO-DEVIATION, TREATED BY VENTRO-FIXATION, WITH REPORTS OF CASES.

The operation of ventro-fixation was not a new one, being nearly as old as ovariectomy, though it was first done by the indirect method of fastening the stump of an ovary or the pedicle of an ovarian tumor in the abdominal incision, not with the idea of correcting any displacement of the uterus, but simply as a means of disposing of the pedicle.

The author then reported fifteen cases, all of which made good recoveries, and at the present time, so far as he could learn, the uterus was held up securely in every one, but of the fifteen, five had more or less constant pain in the wound. This was probably caused by the dragging of the uterus upon the wound. This subsequent pain had occurred mostly in those cases where adhesions were met with, and difficulty was experienced in lifting the uterus up to a sufficient

height to attach it. He thought it would eventually subside. From the author's own results alone, he would consider the operation indicated and entirely justifiable in many cases of retro-displacements and prolapse. Whether other operators would concur with him in his conclusion was what he wanted to know.

FIRST DAY—AFTERNOON SESSION.

Dr. Henry T. Byford of Chicago, read a paper entitled
THE TREATMENT OF UTERINE FIBROIDS.

The author first mentioned certain facts in connection with the growth of uterine fibroids upon which could be based principles of treatment. He then considered six different methods of treatment.

Regarding the treatment of the stump, Dr. Byford said it may be ligatured or clamped and fixed into the lower angle of the wound, or ligatured and dropped into the abdominal cavity, or turned into the vaginal cavity through an opening in the anterior vaginal fornix. Or the uterine arteries may be ligatured and the stump hollowed out and sutured or left open. Various minor modifications have been employed, such as covering the stump with peritoneal flaps, or stitching it under the abdominal incision, but outside of the peritoneal cavity, etc., etc. Many are now taking out the entire uterus, cervix and all. It is not desirable to discuss here these methods in detail. The author stated his individual experience as a contribution to the history of the operation. He employs vaginal fixation almost exclusively. Among thirty-four operations done for fibroids, there had been two deaths and thirty-two recoveries, excluding operations done for sarcoma. Time could only tell what method would become the accepted one. The statistics of all methods were improving. Abdominal fixation of the stump is perhaps a trifle the safest, but was so often followed by hernia, and had such disagreeable and prolonged after-treatment connected with it, that it must be superseded by the first method that will show as good statistics.

Dr. H. W. Kendall of Quincy, followed with a paper entitled "An Unusual Plea for the Gynecologist."

Dr. O. B. Will of Peoria, read a paper entitled

CATHETERIZATION OF THE FALLOPIAN TUBES.

His observations in this direction had not as yet carried him very far. Two classes of cases, however, clinically speaking, he had been enabled to treat with the greatest satisfaction by catheterization and injection into the fallopian tubes. Where there exists a persistent leucorrhœal discharge of catarrhal type, even in unmarried women, where even intra-uterine medication fails to control, he had often been enabled to stop it entirely by the use of injections of peroxide of hydrogen into the fallopian tubes; for the fact is demonstrable that it is in just this very class of cases that the tubal meatus is found to be most patulous. It is not necessary that the injection tube be introduced more than through the isthmus in order to accomplish the desired purpose. Beyond that point, the increasing diameter of the tube readily admits of the exudation of the peroxide through the small eyelets near the end of the tube. The other class of cases referred to is that in which we find intermittent discharges of pus from the uterine cavity. Those cases in which the patient gives a report of more or less frequently recurring ruptures of "ulcers" or "abscesses" unquestionably are cases of pyosalpinx, in which the distal extremity of the tube has been closed by adhesions, while the uterine end is yet not sufficiently occluded to bear the strain of accumulating pus. In the author's experience a goodly number of these cases can be successfully treated in the manner indicated, in combination with other conserva-

tive measures that might be dwelt upon. What he desired mostly to impress upon the members of the society was this: that the fallopian tubes are far more frequently amenable to catheterization than is generally supposed, and that therefore, in the light of modern therapeutics, a persevering and intelligent study of the subject will do much to remove one of the opprobria of medical art, and add laurels to truly scientific conservatism.

Dr. A. E. Corr of Carlinville, read a paper on

LITTLE THINGS IN OPHTHALMOLOGY.

The author said the adjustment of the lenses selected to one's eyes and face was a matter of much more importance than is thought. The pupillary distance should correspond as near as may be, with the space between the center of the pupils when viewing the objects at the distance the lenses are to be used. The distance between the optical center of the lenses after they are placed in the frames in which they are to be worn should correspond to this pupillary distance. The height of the nose piece should be so arranged that the line of vision to the same object should pass through the optical center of the lens. The prominence of the nose piece should be so arranged that the posterior face of the lenses just clears the eye-lashes and the lenses should be so otherwise adjusted that their faces should be at right angles with the visual lines. If the lens is tilted from this, either vertically or horizontally, it becomes in that meridian in a degree a cylinder. The paper bristled with practical points throughout.

Dr. Henry P. Newman of Chicago, read a paper entitled "Prolapsus of the Uterus and Adjacent Organs."

Dr. Josephine Milligan of Jacksonville, contributed a paper on "Treatment of Breech Presentations."

FIRST DAY—EVENING SESSION.

The Society re-assembled at 8 P. M. and was called to order by President Ingals.

After the rendition of a musical selection, Dr. O. B. Will, first vice-president, took the chair, and President Ingals delivered his annual address.

He said the officers of the Society had during the past year endeavored to interest all the eligible physicians they could reach, and that 125 names had been added to the rolls. He felt confident that if each member would aid in this effort through local societies and by urging the importance of a great State organization upon his immediate professional friends, the task would be quickly accomplished.

Preliminary Registration.—It is believed that the method adopted this year of registering by mail, before the annual meeting, will greatly facilitate the work of the Society; that it will secure an accurate and thorough distribution of the volume of transactions, and prevent the dropping of valuable names from the rolls.

President Ingals then asked the Society to carefully consider the following subjects:

1. The means for increasing membership, and the unification of the profession.
2. The importance of registration before the annual meetings.
3. The control of State charitable institutions.
4. The sanitary interests of the State.
5. The interests of the public in professional matters, and education of the people through the Committee on Medical Societies by frequent circulars of information.
6. The appointment and work of the Committee on Legislation.
7. A National department of public health.
8. Aid to medical libraries.
9. Practical encouragement of the best medical schools and the proper regulation of hospitals and dispensaries.

10. The services and duties of our State Board of Health, and the desirability or practicability of establishing a college of examiners.

Dr. I. N. Danforth of Chicago, followed with the address of Section One entitled

THE DIAGNOSTIC VALUE OF TUBE CASTS WITH DEMONSTRATIONS.

Dr. N. Senn of Chicago, delivered the address of Section Two. He selected for his subject

LAPARO-HYSTEROTOMY; ITS INDICATIONS AND TECHNIQUE.

Dr. Senn submitted the following conclusions:

1. Laparo-hysterotomy is justifiable when delivery through the normal passage is impossible without mutilation of the living child.

2. It is absolutely indicated where the conjugata vera is less than two and a half inches, when obstruction is due to fixed pelvic tumors and advanced malignant disease of the cervix.

3. Mutilating operations on a living child for the purpose of effecting delivery are no longer legitimate obstetric procedures as laparo-hysterotomy and symphyseotomy are life-saving operations for both mother and child.

4. Hysterectomy after laparo-hysterotomy is only justifiable if the uterus itself is the seat of a life-threatening removable disease.

5. Elastic constriction as a hemostatic measure should not be resorted to in laparo-hysterotomy before the delivery of the child.

6. The uterine incision should be enlarged to the requisite extent by tearing for the purpose of diminishing hemorrhage.

7. The uterine visceral wound should be closed by four rows of sutures applied in such a manner as to absolutely arrest the hemorrhage and completely separate the uterine from the peritoneal cavity.

8. Laparo-hysterotomy is also indicated in the operative treatment of single, large myo-fibromata of the uterus in young women when the tumor is located within or near the uterine cavity.

9. In such cases the uterine incision should be closed in the same manner as in operations on the pregnant uterus, and the bed of the tumor should be packed with iodoform gauze, which is brought through the cervix into the vagina, thus serving the double purpose as a hemostatic and capillary drain.

SECOND DAY—MORNING SESSION.

Dr. J. H. Etheridge of Chicago, contributed a paper entitled "Split Flap Operation for Perineal Laceration, Complete and Incomplete." In the absence of the author, Dr. Fred Byron Robinson of Chicago, demonstrated the operation on the blackboard.

Dr. Robinson then followed with a paper with demonstrations on "The Causes for the Removal of Abdominal Tumors."

Dr. Marie J. Mergler of Chicago, read a paper entitled

INDICATIONS FOR THE REMOVAL OF UTERINE APPENDAGES.

The author said that the experience of our best authorities up to the present time define the legitimate limits of the operation as follows:

1. Existence of neoplasms in the appendages.

2. Hernia or prolapse of the ovary, when irreducible, and when producing urgent symptoms which do not yield to palliative treatment.

3. The arrest of the growth of uterine fibroids. Here the limits can hardly be said to be definitely fixed. As a rule, however, the operation may be taken into consideration for tumors which are submucous or interstitial, before the uterus has attained a great size. It may also be considered

in fibroids when the symptoms are urgent, and when either on account of cardiac weakness or from the presence of nephritis so common in fibroids, the more radical, however more dangerous, operation of laparo-hysterectomy would be attended with too much risk.

4. Inflamed conditions of the appendages, whose symptoms render the patient's life a burden, and which have resisted a fair trial of palliative treatment. These conditions complicated by extensive adhesions of the organs are less likely to yield to mild measures. Even in these cases the breaking up of firm adhesions, after abdominal section, without removal of the ovaries or tubes, has been followed by relief of the symptoms.

5. The presence of pus in the ovary and encysted pus in the tube, as a rule require the radical treatment.

6. Marked reflex neuroses whose origin may be traced directly to diseases of the appendages. These indications can be but general guides. An inflexible rule can not be laid down as every case must be studied by itself, and at all times removal should be regarded as the last resort.

Dr. C. Fenger of Chicago, followed with a paper on "Plastic Operations to Cover Loss of Mucous Surface in the Mouth." The paper was profusely illustrated, and patients were exhibited showing the results obtained.

Dr. F. C. Ilotz of Chicago, read a paper entitled "Early Mastoid Operation in Acute Otitis Media."

Dr. W. P. Verity of Chicago, read a paper on "Fracture of the Patella and its Treatment." About 100 drawings were exhibited in connection with the paper.

Dr. J. F. Oaks of Chicago, read a paper entitled

THE DIFFERENTIAL DIAGNOSIS AND TREATMENT OF SUPPURATION OF THE ACCESSORY CAVITIES OF THE NOSE.

From a critical analysis of the literature pertaining to the subject and clinical experience in a few cases, the author formulated the following conclusions:

1. When the presence of pus or retention of secretions has been diagnosticated, the indications are to secure free exit of the same and efficient drainage.

2. In antral suppuration, the opening should be made with chisel and mallet through the canine fossa, according to the method of Küster or Robertson, of sufficient size to permit exploration with the little finger and small incandescent lamp, followed by curettage, if necessary, and the dry method of Krause-Friedlander.

3. In sphenoidal suppuration the method of Schaffer is to be commended, namely, enlargement of normal openings by breaking through anterior wall of sinus with curette and thorough curettage.

4. In frontal suppuration the choice of operative procedure depends upon the indications, namely, if there is bulging of the inner and upper wall of the orbit, that site should be preferred for the artificial opening. The point usually selected for the latent form is immediately below the superciliary ridge, and near the bridge of the nose, of sufficient size to give free access to the sinus for the purpose of exploration, thorough drainage, and reestablishing communication with the nasal cavity.

5. In suppuration of the ethmoidal cells, guided by the indications of the probe as to the presence of caries and pus, we should proceed to open up all suppurative foci by means of the snare, hot or cold, nasal cutting forceps, curette, trephine, gouge or the galvano-cautery knife.

6. A thorough knowledge of the topography of the ethmoid, its anatomical relation to the cranial and orbital cavities, together with a high degree of manipulative dexterity, will enable one to proceed with the assurance and rapidity that is so desirable in view of the free and annoying hemorrhage which is usual in intra-nasal surgery.

(To be continued.)

DOMESTIC CORRESPONDENCE.

To the Editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

Dear Sir:—As the number of papers to be presented at the next meeting of the Association can not be duly disposed of so as to do justice to their authors in the limited time allotted to each, and as the business before the Association is annually becoming more cumbersome, it is the opinion of the writer, as well as many with whom he has conversed, that a proper committee representing all the interests involved should be appointed at the next session to report at the session following upon the propriety of changing the name from the American Medical Association to the American Congress of Physicians and Surgeons. That each Section of the present organization hold their separate annual meetings and that they be held before the annual meeting of the Congress. That each Section report a synopsis of all the papers and all matters of special importance and interest. That the membership of the Congress shall consist of delegates from Sections, State Societies, and such other delegates as the Congress may determine, so that all departments may receive such attention in a more deliberate manner as will benefit all its members. J. W. HERVEY, M.D.
Indianapolis, Ind.

Code of Ethics.

TO THE EDITOR OF THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Dear Sir:—Having been invited by the chairman of the committee charged with the duty of recommending to the next meeting of the Association certain changes in our Code of Ethics, I beg leave briefly to state my objections to one word of change. I have been living up to this Code since its adoption; attended the first meeting of the Association in New York and have never had any trouble with a doctor in good standing in forty-five years. In my annual address as president of the State Society I urged that body to purchase 500 copies of the Code for the use of the members, and as president lately of our city society I urged the same measure. These resolutions were laid on the table till it is known whether the Association will make any change in our Code. We want no new "Decalogue;" no new "Lord's Prayer." It is not within the power of man to invent a more perfect law of morals than that of the Bible. "The law of the Lord is perfect," and it is upon this law that the Code of Ethics is founded. As I stated in my pamphlet, "Forty Years a Doctor," our profession is *declining* in its dignity and its honorable bearing towards the public and towards its fellow members. I have abundant facts to establish this proposition in Virginia, and I learn in other localities affairs are probably worse, and I believe it. The greed for money has increased in the past forty years. I find multitudes of our young men have never seen a copy of our Code. I sent to our editor at Chicago lately for some copies and distributed them among young practitioners of ten and twelve years, and it was a revelation to some of them, and hearty thanks were returned to me for them.

No alliances with new schools or new dogmas. The younger members of the profession have been immensely damaged by the homœopathic outcry of too much medicine, and many a life has been sacrificed to this humbug of all humbugs. I will be glad to send my essay on the "Rise and Decline of Homœopathy" gratis to any one who has any faith in this crackbrain theory. May I be allowed to say that a most distinguished professor of the University of Virginia (not a doctor) said this essay was a "settler" of the controversy between the two schools.

I have read carefully the Code lately, and while some

scholars might prefer verbal changes in some sentences, yet these changes are matters of taste merely. The Code can not go into details of the "contract system" and other new questions that may grow out of these changes, but must state broad principles. We want no big volume on ethics. We would be in favor of a decalogue of cardinal principles, if possible.

Fearing I may not be able to attend the next meeting of our Association, I beg leave to give my views on this most important subject. Very respectfully,

W. W. PARKER.

Richmond, Va., May 14, 1893.

To the Editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

Dear Sir:—The "Code" question it appears is not yet settled. I have read with care everything that I have seen in print on both sides of the question and I must confess that I have not seen a single convincing argument that the Code should be abolished or materially changed or amended. There have been many harsh and positive assertions that the Code is an awful document, that its language is bad, that it is old and that it does great injustice to somebody, and many other similar expressions, but such declarations are not arguments, and what these fellows want I do not believe any one can tell; one will assert that the Code is old and therefore it should be abolished and another will assert that the Code never has been enforced and never can be, and that it is a dead letter; and these same fellows will turn right around and assert that the Code is doing great injustice to certain parties and is the cause of all the trouble in the medical profession. The truth is, they do not know themselves what they want. There is, however, one thing that these howlers about the Code are unanimously agreed upon and all in favor of, and that is they are all in favor of consultations with homœopaths or rather the pretended homœopaths, for there is no such thing as a genuine homœopathic doctor on earth.

When I converse with a physician and learn that he is opposed to the Code I generally learn in that same conversation that he is in favor of consulting with homœopaths; even our friend of San Jose, Cal., who wrote an excellently worded article. But while it was a well written article and cut right and left at the Code it could be seen that its author was not feeling well and that he was either mad or sick, and it was somewhat puzzling to tell what was the matter with him; but when he touched on the question of consultations, it was clearly to be seen that he too was suffering from an acute attack of homœopathic consultation.

I believe I have never known a physician who was strongly opposed to the Code that was not in favor of consulting with homœopaths. Why physicians occupying honorable positions as many of them do, will thus act, is and always has been a mystery to me. It must be that they do it for the consultation fee and the fee alone. I am for the Code.

JOHN WRIGHT.

Clinton, Ill., May 13, 1893.

To the Editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Dear Sir:—In your issue of the 13th inst. is a letter from Edward Jackson of Philadelphia, on revision of the Code. I write to express myself as in hearty accord with all he has written. In addition, permit me to express the hope that the Association will speedily absolve all its members from further adherence to the present Code, and give us in its place a few sentences defining conduct unbecoming a physician. Respectfully,

H. J. B. WRIGHT.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Dear Sir:—I am pleased to notice that my article in THE JOURNAL of April 22 seems to have touched one of the key notes on Code revision.

We have a literary symposium on the revision question in the issue of May 6.

I had expected that "A Conservative Member" would draw aside his long and ancient cloak, and reach forth and give the brake on the wheels of progress another twist. This has been the business of "conservatives" all along down the ages. It was conservatives who said nineteen hundred years ago that the great Nazarene Teacher was an impostor, that his doctrines were innovations, that he was a disturber and mischief maker, that if he was allowed to proceed in his course the very foundations of religion would be upturned; and said conservatism finally resulted in his death upon the tree. A little later, when the beautiful doctrines of the Nazarene were perverted in the name of Christianity, it was the conservatives who burned the great libraries of the world and plunged mankind into a midnight of darkness for a thousand years.

It was the conservatives who pulled out their musty Bibles and said that the Copernican theory of the universe was contrary to Scripture, and they were sorry that Copernicus died very soon after promulgating his doctrine, thereby depriving them of the privilege of killing him.

Who was it that murdered 100,000 people on Saint Bartholomew's Day? Who was it that burned Bruno at the stake? Who was it that made Galileo recant on bended knees from his statement that the earth turns upon its axis, and kept him a prisoner and a seal upon his mouth the remainder of his lifetime? Who burned Servetus at the stake because he would not repeat "three times one are one?" Who with their musty Bibles fought to prevent the teaching of astronomy and geology? Conservatives, all of these! Who have advanced the interests of mankind and brought them up from barbarism to intelligence and civilization? Without a doubt, the heretics, directly and indirectly.

"Conservative" says that no arguments have been presented showing reasons why the Code should be revised. This reminds me of the little conversation that took place between Abraham and his hot friend in Hades. The rich man pleaded that some one be sent back to inform his five brethren, so that they might escape the tortures of eternal thirst, but Abraham answered: "If they hear not Moses and the prophets, neither will they be persuaded though one rose from the dead." Those brethren were all "conservative" Jews, the same outfit who murdered the speaker who uttered that parable. To present an argument considered tenable by one sailing under the *nom de plume* "Conservative," may be a hopeless task. The very word conveys the impression of one joined to his idols, or one who is desirous of preserving the *statu quo*.

It is very possible that "Conservative" has got on in his profession up to date without using any of those wicked patent things, and stands as the embodiment of consistency. If so, it would be interesting to take a peep into his ancient saddle bags. But from certain indications he has not kept aloof from copyrighted books, both professional and otherwise. Thanks to Dr. Rumbold of San Francisco, for the suggestion of the inconsistency of a medical man holding a copyright for a medical book. How dare they "on humanitarian principles" interpose any barrier between their knowledge and dear suffering humanity by making it more expensive to acquire medical knowledge, and hence more expensive to dispense the same? None so blind as those who will not see.

Why did not "Conservative" answer my argument in regard to patents and specialists?

But no, he takes up his old fetic, the Code, and kisses it once more and then refers to a commentary by Dr. Flint for elucidation of the whole matter. Dr. Flint was known and honored by the medical profession for many years, and his name is revered to-day by all; but neither he nor the immaculate Percival are the sole guides of the medical profession to-day, any more than John Calvin is furnishing the creeds of Christendom.

If the Code is the perfect document that "Conservative" claims for it, is it not strange that we can not all see it in the same light? And is it not strange that it has taken so much time, space and printers' ink to establish that fact? Why does it not commend itself? Methinks I hear some one say, "to all right minded people it does." Then there are a great many perverse minds in the profession. If a vote could be taken of the whole profession the anti-revisionists would be a small minority. There are only about 4,500 members of the American Medical Association, while there are about 100,000 regulars in the United States under the jurisdiction of the Code. And those who are outside of the Association care less for the Code than those inside.

"Conservative" tells us Jan. 14, 1893, that the Code was written for boys, and full grown men, and that that superfluous twaddle and small talk which so many of us object to, was designed for the fledglings, and the more weighty matters of the law for the gray heads. Surely this does explain some things. I had thought all along that the major part of the document was not designed for fully matured men and medical practitioners, hence I was right in using the word puerile. But, now, I move you that we delegate that part that belongs to the boys back to the medical college faculties and allow the professors to deal it out to the youngsters as they think the occasion demands on commencement nights.

Allow me to give a few excerpts from the so-called "immaculate" document written by the unerring Percival,—not addressed to even the boys in the profession, but to persons who do not know there is a Code of Ethics, do not care to know, and never will know,—under the title of "Duties of Patients to their Physicians:"

"The members of the medical profession . . . certainly have a right to expect and require that their patients should entertain a just sense of the duties which they owe to their medical attendants." "The first duty of a patient is to select as his medical adviser one who has received a regular medical education." "Patients should prefer a physician whose habits of life are regular, (see) and who is not devoted to company, pleasure, or to any pursuit incompatible with his professional obligations."

"A patient should never weary his physician with a tedious detail of events or matters not appertaining to his disease," etc.

These are a few samples of a long lingo of what I call *drivel*, addressed to the abyss of empty space. But even if these statements from the "great guns" of the profession were actually in the hands of all the people, none the less would they be *drivel*. No reason for revising though, for "did not the immortal Percival write it?" But "Conservative" says, January 14, 1893, that the original, inspired code of Percival contained 20,000 words, and that our present Code contains only 5,240 words. What vile hands reduced and compressed that heaven born creed into so small a compass? Is it not possible that something has been lost or some meaning changed? "Hands off—a little more compression and we shall not be able to recognize our idol!"

The idols seem to be trembling all around anyhow. The old creeds of the churches are now kept in musty boxes for

decades at a stretch, and are only hauled out at ecumenical councils when the "conservatives" get together to screw down the brakes once more on the wheels of progress. Our fellow creatures—urged on by the heretics—have even tampered with the Word of God, and now we are enjoying the tenth revision of our English Bible. How dare they!

I am in favor of a code of ethics—a revised code, or a new code, but not the Percival code as it now stands; and I am certain that I voice the sentiments of nine-tenths of the profession of California. Not alone is it a little clique in New York State thinking about the matter of revision, as intimated by my venerable friend from Kentucky, but the whole United States is in it. And if a rational, business-like code is not adopted in this year of grace 1893, death and evolution will finally get in their work and the goal will be reached. But if not reached finally the member from Kentucky need have no fears of being crowded on his little "roost" whereon slumbereth the "conservative elect."

But give us a code that will harmonize the profession from Maine to California, from the Lakes to the Gulf, and make for us a great, grand, American Medical Association.

Yours in F. L. and C.,

A. C. SIMONSON, M.D.

San Jose, Cal.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Dear Sir:—I like the *tone* in which Dr. Edward Jackson presents his objections to the Code of Ethics of the American Medical Association, but I do not see the *force* of his objections. What I have to say on this subject I do not wish to be considered as applicable to him.

His line of reasoning, however, would apply to all moral codes, written or understood. It is true that we all know of cases where members of this Association, and of our local societies have violated that part which forbids regular physicians to consult with quacks and irregulars, and we are as familiar with similar or even grosser violations of the moral law by members of society and of churches, which certainly do not warrant abandonment of all standards of morals. As in one case so in the other the violator may not be punished—in the American Medical Association no provision is made for his punishment—but in both he suffers in the estimation of that part of the profession who do respect and observe honorable rules, and, in some degree, by that part of every community whose good opinion all honorable men desire, just as violators of other moral laws do.

I knew, twelve years ago, a graduate of one of our best medical schools, once a professor in a respectable school himself, who not only consulted with homeopaths, but defied his society. His name was struck from the roll of the State society, and he took his place among homeopaths of the most illiterate class, and is there to-day. He took this course for the shekels, as I think most such men do.

I believe it was crazy King George who said, "Ego sum Rex, super grammaticus." Are not some of our brethren on such exalted terms with themselves that they are satisfied to be a law unto themselves? two-horse doctors, as they say in the wild west, in contradistinction to be of the "one-horse shay," albeit both came with equal honors from the same medical school. Some of these gentlemen are never seen in our medical societies, and I fear that hostility to our Code is, if not confined most to be found among such.

Who can suffer from the operation of a Code of Ethics but the galled jade who winces, and whose withers are *not* unwrung? and how are the young doctors to know what is due to themselves, their brethren, and the public without some authorized standard? Let us improve the Code if we can, but let the improvement be such as will elevate our noble profession.

F. W. T.

BOOK REVIEWS.

DISEASES OF INEBRIETY FROM ALCOHOL, OPIUM, AND OTHER NARCOTIC DRUGS: ITS ETIOLOGY, PATHOLOGY, TREATMENT, AND MEDICO-LEGAL RELATIONS. By the American Association for the Study and Cure of Inebriety. 8vo, pp. 400. Price, \$2.75. E. B. Treat, 5 Cooper Union, New York.

This is the title of a handsome volume of four hundred pages of compactly printed matter. Dr. T. D. Crothers, the editor of the *Quarterly Journal of Inebriety* is the compiler.

The book is partly a compendium of some of the more important investigations of the American Association for the Study of Inebriety—extending over a period of more than twenty years. The arrangement of the material, which has become voluminous, is the work of Dr. Crothers himself. As Dr. C. has been the secretary of the Society ever since its foundation, he is peculiarly fitted for the task of sifting, arranging, and collating the facts and principles involved in the undertaking. The original investigations of the author and compiler of the work are very considerable, and they materially enhance its value.

The volume contains some account of the inquiries of "Mason, Day, Crothers, Mattison, Mann, Hughes, Searcey, Wright, Davis, Sheppard, Morris and many others in this country—as well as of Peddie, Kerr, Clouston, Carpenter, Ridge, Richardson and others abroad."

The book is filled with an almost innumerable array of facts and deductions of the highest order of interest and importance. It reads like a romance, by reason of the newness and brightness of its contents. The work is concerned, not so much with the open exhibitions of inebriety, as it is with the principles of science and biology which make inebriety possible—which in fact make it common and intractable. It also points out, either directly or by implication, the applications of these scientific principles to the facts of inebriety—to their prevention as well as their removal.

Thus the work insensibly leads the mind of the reader to first principles—to causes rather than to phenomena; and it irresistibly impresses upon it the great truth that inebriety is not alone the work of individuals immediately implicated, but that it is strictly a disease—diverse in its origin, and boundless in its tendencies. In short the lesson is inculcated that inebriety has claims upon the attention and labor of good citizenship everywhere. A definite analysis of the work in a brief notice is manifestly impracticable. It will no doubt be extensively read.

T. L. W.

GEOGRAPHICAL PATHOLOGY. An inquiry into the geographical distribution of infective and climatic diseases. By ANDREW DAVIDSON, M.D., F.R.C.P. Ed. New York: D. Appleton & Co.

The plan and scope of this work is somewhat novel, but none the less useful, treating as it does of the geographical distribution of infective and climatic diseases. Charts are introduced to illustrate the characteristics of these affections in the different countries in which they are found to exist. The rapid growth of sanitary and climatic resorts is an immediate result of accumulated wealth, which in turn enables invalids to take advantage of quick and comfortable methods of transit for the purpose of obtaining the best facilities and treatment that medical skill and climate can give.

The ailing and sick are naturally guided in their course by their medical advisers, for whom this work is a mine of valuable information. The author has carefully compiled and formulated a vast amount of knowledge that is of interest and that can only be elsewhere obtained with an expenditure of much time and labor.

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SATURDAY, MAY 27, 1893.

THE CODE OF ETHICS.

PRELIMINARY STATEMENT OF THE MINORITY OF THE
COMMITTEE ON REVISION.

In a circular signed by the committee on revision, and published in THE JOURNAL, November 19, 1892, every member of the Association was requested "to study anew the Code of Ethics and the Constitution and then inform the chairman of the committee on the following points:

"1. Do you advise any change in these documents?

"2. If you advise a change, please state specifically what that change shall be. In answering, state the section or sections you would strike out, or add to, or amend. Kindly give the exact phraseology that would best meet your views in the changes you suggest."

In the same issue of THE JOURNAL, the present Code and Constitution were published in full for convenience of reference and study.

Four months after this notice was sent to the members of the Association the committee met for conference in Buffalo.

The number of letters received by the chairman indicating a wish for a modification of some sort was twenty. No alteration of the Constitution was suggested. All related to the Code only. Of these, two ask that all restraint regarding the patenting of instruments be removed; one that physicians be not forbidden to sell proprietary medicines, provided they do not recommend them. One wishes advertising to be allowed; one thinks wealthy physicians should be permitted to furnish gratuitous services to people who are in affluent circumstances; one distinguished member, who says he is not a practicing physician, favors a shorter Code; another wishes a more stringent one. A medical education is regarded by one member as the only test of fitness; while another declares that the Golden Rule is all the code which he desires. One thinks consultations with all

legal practitioners should be allowed; another wishes such changes made as will win back the recalcitrant New York "abrogators;" while three ask that every doctor be allowed to exercise his own judgment concerning consultations.

The majority of your committee decided to recommend several alterations in the Code, and appointed a sub-committee to put them in form.

To the subscriber—the minority of the committee—it seemed reasonable to infer that those who did not take the trouble to respond to the urgent invitation of the committee and suggest changes were either indifferent or satisfied with the Code as it is. A grievance which does not inspire even the feeblest attempt to secure its removal or modification is usually not hard to be borne.

The invitation, as will be remembered, was limited exclusively to those members who wish an alteration of some kind. Yet a considerable number, not content to have their silence construed as indicating satisfaction, sent to the committee earnest requests to let the Code remain as it is. Among those who remonstrate against any mutilation or modification of our system of ethics are some of the best and most steadfast friends of the Association, whose names have added luster for many a year to American medicine and surgery. More than fifty individual protests against alteration of the Code were received, in addition to protests from societies, one of which represents more than 700 members.

As the clamor for a change of the Code has not materialized in any widespread expression, and as the silence of 99 per cent. of the 7,000 members of the Association ought to be counted in favor of satisfaction with the present status, further and detailed consideration of the proposed amendments might be omitted.

But the avowed opinion of any loyal member of the Association deserves at least a brief and candid notice.

1. *Patents.*—Section 5 of Article III of the Code declares that "it is derogatory to professional character for a physician to hold a patent for any surgical instrument or medicine." Regarding patent or secret medicines there can hardly be any diversity of opinion as to the wisdom of the Code declaration.

The illustrated boasts of the quacks which adorn the pages of all of our newspapers (an honorable few excepted), should present no temptation to any reputable physician to engage in the manufacture or sale of secret or patented nostrums, whether he recommends them or not. The earnest endeavor of the worthy physician, whether appreciated or not, should be, as it always has been, by counsel and exposure, to dissuade a credulous public from using the worthless advertised specifics and panaceas which deluge the land.

A few honorable practitioners, however, desire to patent *instruments* which they have invented. And they ask that the Code shall not stand in their way. They claim that, if they can possess the monopoly secured by a patent, they will not only make a superior article but they will furnish it at a lower price to the profession than if its manufacture were open to every instrument maker.

The observation of the public is that a patent does not necessarily secure a better or cheaper article. A high-toned inventor might be willing to divide the profits of his monopoly with his professional neighbor. But all inventors are not high-toned. The majority of them look out for their own interests.

All through the ages, physicians and surgeons have employed the implements invented by their neighbors or by past generations. They have paid no royalty. Competition has perfected the quality and reduced the price. Each of the innumerable procession of inventors has contributed his mite to the fund of which he and all the profession have partaken freely. Is it a spirit of gratitude, or even fairness, that I exhibit when, having had gratuitous access to the boundless treasures furnished by my brethren, I seek to levy a tax on every one of them who uses the ingenious trifle which I am able to add to the noble storehouse? Should not the honor of being credited with an invention, nay, should not the pleasure of doing something for a profession which has done so much for me and for humanity, be, as it has been for all my predecessors, an exceedingly great reward?

2. *Gratuities to the rich.*—No better reason can be given why wealthy physicians—or those who are not wealthy—should not bestow gratis services on the affluent than those clearly stated in Section 9, Article VII of the Code.

3. *Should the Code be abbreviated?*—That the Code is somewhat lengthy is obvious enough. But if it contains no harmful sentiments, if the careful observance of all its precepts by the profession and the laity would do immeasurable good, then the time required to read and study its nineteen pages can hardly be devoted to a better purpose.

4. *Consultations.*—A diversity of opinion seems to exist as to what qualifications should be considered requisite to render any person a fit consultant for a practitioner of rational medicine. And here it may be premised that a consultation—as the author of the Code evidently designed the word to be understood, and as the American Medical Association did understand it—is not the interview of an ignorant and credulous suppliant with a Delphic or other oracle, but is a clinical conference of medical men to examine a patient, to make a diagnosis and to agree if possible on a plan of treatment.

By some members of the profession, the possession of a medical education—such a medical education as is now generally required by the laws of the land

—is regarded as a sufficient test of fitness. These are they who claim that one who holds a legal license is worthy and well qualified not only to practice but to be met in clinical conference and even to be received into professional fellowship.

It is hardly necessary to argue here that legality and fitness are not interchangeable terms.

By imperial decree, Caligula's horse was made a legal Roman senator; but was he therefore a fit associate of the august law givers?

May not a man be empowered by our sapient legislators to do one thing while he remains conspicuously unfit to do another? The law of many States requires every applicant for a license to practice medicine to pass the same indiscriminate examination in anatomy, physiology, chemistry, surgery, obstetrics. Beyond this, uniformity ceases to be demanded. One applicant who has studied the *materia medica* and the science and art of medicine which are recognized by all physicians throughout the civilized world, has a special examination in these branches; while another, who ignores and utterly repudiates this *materia medica* and therapeutics, has a special examination by a special board in the tenets of a school which holds a peculiar and exclusive dogma. Each applicant receives a license to practice and has the same legal standing in the community.

But will any sensible general practitioner seriously claim that the most profound knowledge of anatomy, physiology and chemistry, associated with an entire and boastful ignorance of the practice of medicine, as adhered to by every scientific physician the world over, is a sufficient medical education to constitute its possessor a fit consultant at the bedside of human illness, provided he is the owner of a legal license?

Are physicians summoned to confer on anatomy and chemistry and obstetrics when a patient in the adjoining room is suffering the pangs of pleurisy, meningitis or calculus?

A consultation, as has been mentioned already, is a mutual presentation of opinions regarding the nature of the existing disease and the treatment which promises the relief. Is not a pretended consultation regarding treatment by two practitioners whose views are known to be radically and irreconcilably different, who have in common not one single item of precept or practice, an imposition on the patient and his friends; a barefaced fraud and swindle which no honorable physician should engage in himself or commend as proper to his brethren in the profession? The Code declares that one who rejects the accumulated experience of scientific physicians and pins his faith to an exclusive dogma and honestly practices in accordance with his public professions, has separated himself from the ranks of rational practitioners, and is therefore not to be regarded as entitled to consultation privileges.

Certain excellent members of our profession, who hold what are called liberal views, justify consultations with the exclusive dogmatists (although, as they take pains to declare, they themselves never engage nor desire to engage in such consultations) on the ground that nearly every one of the dogmatists constantly wears a mask of insincerity to beguile the community, publicly denouncing the methods, the medicines and the doses of scientific physicians, while privately using them in his daily practice. My observation is not extensive enough to controvert these assumptions.

But is it not difficult to reconcile with a high mental and moral standard the opinion of one who first charges his neighbor with gross insincerity and double-dealing, and then is liberal enough to commend him as a fit associate at the bedside *because* he is a false pretender?

A few distinguished members of our Association, while expressing their personal contempt for the principles and practices of irregulars, wish to have the decision, as to who are proper consultants, left to the individual practitioners. The assertion is that in practice the great mass of physicians are, and always will be, governed by the dictates of their own judgment—whatever may be forbidden by the rules of any Association which they may have voluntarily joined; *therefore* it would be good policy so to amend and liberalize our ethics that every member of our Association can exercise his own sweet will and not violate the Code which he has pledged himself to uphold and defend.

It is submitted that this is a low estimate to put upon the sincerity and honor of the profession. While the public sentiment of this Association of eminent and worthy practitioners, as expressed in the Code of Ethics, may be violated by an inconsiderable and inconsiderate few, doubtless it has had an instructing and restraining influence on many who might otherwise thoughtlessly have gone astray. The moral effect of a judicious enactment may be highly salutary, even if no penalty for violations is prescribed.

5. *The Guild of Physicians.*—The provision of the Code which recognizes the existence of an *esprit de corps*, a fraternal relation between members of the profession, and points out the indelicacy of physicians charging each other for medical attendance or counsel, is now assailed by a few very prominent members. They are the ones who ardently desire the Code to be liberalized; and curiously enough, they happen to be the ones who favor the holding of patents and unrestricted consultations.

A somewhat extensive observation has failed to discover the unwillingness of medical men to render gratuitous service to the person or the family of a brother in distress. And while the recipient of the

generous attention may never be able to pay in kind or in money, his unceasing gratitude is regarded as an abundant reward. In those instances where, from remoteness of residence, reciprocity is impracticable, a pecuniary addition of some amount, to the gratitude, can and should be, and usually is, contrived to be made.

The glory of our noble profession will have departed forever when sentiment has been throttled by the love of cold cash.

Our excellent Code of Ethics needs no panegyric.

As a literary composition, comprehensive, logical and elegant, it has few superiors in the English language.

If it were well known and carefully studied by all the elder members of the professions; if a copy of it were presented to each medical student at his graduation, with the earnest recommendation to become familiar with its counsels and never to swerve from their observance; if every physician would take pains to introduce it into each family of his acquaintance popular prejudice and misrepresentations, founded on entire ignorance, would soon cease; the mutual obligations of the public and the profession would be better known and observed; and the unrest of the few would be soothed by the immovable satisfaction which the multitude of all-round surgeons and general physicians would exhibit.

The wise precepts of this Code have been the standard of our Association for nearly fifty years, and the semi-centennial of its adoption should be celebrated with appropriate ceremonies in 1897.

It has received the sanction of the most illustrious members of the profession in America and abroad. No one of these will regard as invidious or inappropriate the naming as prominent among its staunch supporters, the grand and venerable Father of the Association Dr. Nathan S. Davis,—and also the latest in the line of his worthy presidential successors, the eminent gentleman who will preside at the Milwaukee meeting.

The aim and tendency of this time-honored Code, which enjoins doing nothing wrong and restrains from doing nothing which is right, are to prevent the practice of medicine from becoming a mere mercenary trade, and to preserve it on the high plane of honor, beneficence and integrity, a profession deserving the respect and admiration of all good people.

The opinion of the subscriber, the minority of the committee, is that the present Code of Ethics should remain essentially unchanged.

Furthermore, he wishes to state that, after reflection and careful comparison of the present Constitution and the proposed new one (which was somewhat hurriedly considered by the committee), he believes that the adoption of many of the radical changes recommended would not promote the welfare of the Association.

HENRY D. DIDAMA.

CHLOROBROM IN ASYLUM PRACTICE.

In the *Lancet*, March 18, Dr. JOHN KEAY, superintendent of the Mavisbank Asylum, Edinburgh, reports favorably concerning the hypnotic action of this compound in cases of melancholia and similar mental states. The effects produced by the drug are like those obtained from paraldehyde in combination with a bromide. He has generally given one ounce of the solution at bedtime, each ounce containing thirty grains each of chloralamide and potassium bromide. If there is much excitement he has given as much as two ounces of the solution, without untoward effects. He has not found the drug suitable as a sedative in the excitement of epilepsy, mania or general paralysis.

The term "chlorobrom" is one of those arbitrary drug names that have the sound of giving to a mere mixture the dignity that pertains to a definite chemical product. PROFESSOR M. CHARTERIS, of the University of Glasgow, is said to have invented the word and that he has been somewhat sharply criticised for trying to popularize it. As above intimated, the mixture is of the simplest description, not even requiring the manipulation of a pharmacist; it is made up of an equal quantity of the two drugs named above dissolved in water. An ounce of the solution contains thirty grains of each drug. The initial dose is ordinarily six drachms for an adult person, while one ounce is the full dose. DR. CHARTERIS recommended the preparation last year, in the first instance, as the most acceptable remedy known to him for the prevention or relief of sea-sickness, especially useful when the voyage is a short one, as for example in crossing the Channel to France, or the North Channel to Belfast. The remedial effect of chlorobrom in sea-sickness appears to be solely that of a hypnotic that acts quickly and thoroughly.

THE RELATION OF SUICIDE TO ALCOHOL CONSUMPTION.

The *Medical Press and Circular*, March 29, has compiled some striking data concerning the progress of suicide in France. That journal makes a statement from statistics that have been compiled in France; it would seem that suicides in that country bear an important relation to the amount of alcohol consumed. From 1836 to 1840 the consumption of alcohol was upwards of 500,000 hectolitres, and during that period 137 persons committed suicide as the result of alcoholism, and from the same cause there were 226 accidental deaths. From 1880 to 1885, when the consumption of alcohol rose to 1,800,000 hectolitres, there were 868 suicides and 537 accidental deaths, for which alcoholism was responsible—a very notable increase.

The wide gap in the dates chosen for comparison

has been necessary for more than one reason, but one important reason was that it seemed best to omit the period of the Franco-Prussian conflict, as being non-comparable by reason of the depressing influences of war and communistic struggles.

SURGEON GENERAL OF THE UNITED STATES NAVY.

SURGEON-GENERAL BROWNE retired May 10, and was succeeded by Medical Inspector J. RUFUS TRYON.

In this promotion there is a skip over the heads of fourteen active naval surgeons, for which there is no evident justification and important reasons for a condemnation of such promotion.

When a young man considers the propriety of entering the medical department of the army or navy, he naturally takes into account the promotions, honors and emoluments that are open to him in consideration of honorable service rendered; the last being the crowning glory of retiring from active service when he has arrived at the fullness of years as the superior officer of his corps. This is a matter that is looked upon by the young man as a practical moral obligation on the part of the government, and in which he is perfectly justified by the inducements held out to him by the government, when it solicits him to become an applicant for appointment in the lowest grade of the service.

We have naught to say of the capability and acquirements of Surgeon TRYON, but we do say every one of his former fourteen superiors in rank have just claim for feeling aggrieved. They have been practically court-martialled and reduced in rank and that without the semblance of cause or justification. The government has morally broken faith with them after a lifetime of service. Such promotions are demoralizing to discipline and good order.

It is beyond reason to think that these fourteen gentlemen after their long and honorable service will take kindly to the promotion over their heads of one who is long their junior in rank and not superior in service rendered the government. Others will be made restive under an impression that it is possible that they too may be legated to remain fixtures in rank, while favorites are promoted over their heads. The principle is bad and should be condemned, and that loudly.

THE ARROWHEAD HOT SPRINGS OF SOUTHERN CALIFORNIA.

Among the multiplicity of mineral springs that have been brought to light in recent years, the one above named seems to have as much promise as any other on the Pacific slope. DR. WILLIAM CHAPMAN of Los Angeles has given, in the *Journal of Balneology*, a succinct account of their topographical and medicinal peculiarities.

The springs, twenty in number, occupy an area of about two acres. They take their name from an arrow-head shaped bare spot on a mountain spur that juts up immediately behind them. Their temperature ranges from 99° F. to 193°—or not far below the boiling point of water—their average being much higher than at either Carlsbad or Arkansas. The water is moderately sulphurous in taste and odor, in its reaction alkaline, and its action on the bowels is laxative, cathartic or purgative according to the size and frequency of the dose. The waters are expected to yield diuretic and diaphoretic results, especially when taken in conjunction with the mud baths and hot-room.

The mud baths are considered the strongest therapeutic advantage of the springs. Each bath room is supplied with its own mud tub and sweating room, connected with which is the hot room, used as the cooling room for all the adjacent bathing apartments: this large room is fitted up as a library or sitting room. The mud is heated from the hot springs which are a little higher than the bath house, the degree of heat being regulated to the needs of each patient.

The springs are six miles north of San Bernardino two thousand feet above sea-level, and seventy miles distant from the Pacific. The Sierra Madre range of mountains, near at hand, has in it the abrupt peak of Mount San Bernardino, rising to a height of eleven thousand feet above the sea. The San Jacinto mountains are in view in the distance, and the beautiful valley, through which the Santa Ana river courses, is spread out below for miles, in plantations, fields and woods. The great orange country, Riverside, at an elevation of one thousand feet and nearly ten miles distant from the springs, can be discerned from the outlook of the grounds.

The climate like that of Southern California generally is very enjoyable. Every afternoon there is a cool breeze from the ocean. The air is dry, soft and free from dust and foreign matters.

RAILROAD RATES.

We have been advised by the railroad people, that the best course for delegates to pursue is to take advantage of World's Fair rates to Chicago, and at Chicago buy tickets to Milwaukee, taking the agent's certificate in order to obtain the reduced rate returning to Chicago.

This plan enables delegates to stop over at Chicago for any desired length of time.

MISCELLANY.

THE NEW LAW REGULATING THE PRACTICE OF MEDICINE IN KENTUCKY.—*Be it enacted by the General Assembly of the Commonwealth of Kentucky:* Section 1. It shall be the duty of the county clerk of each county to purchase a book of suitable size, to be known as the "Medical Register" of the

county, and to set apart one full page for the registration of each physician; and when any physician shall die or remove from the county, he shall make a note of the same at the bottom of the page; and said clerk shall, on the first day of January in each year, transmit to the office of the State Board of Health a duly certified list of the physicians of said county registered under this law, together with such other information as is hereinafter required, and perform such other duties as are required by this law; and such clerk shall receive the sum of fifty cents from each physician so registered, which shall be his full compensation for all the duties required under this law.

Section 2. It shall be unlawful for any person to practice medicine in any of its branches, within the limits of this State, who has not exhibited and registered in the county clerk's office of the county in which he resides his authority for so practicing medicine as herein prescribed, together with his age, address, place of birth, and the school or system of medicine to which he proposes to belong; and the person so registering shall subscribe and verify by oath, before such clerk, an affidavit containing such facts, which, if willfully false, shall subject the affiant to conviction and punishment for perjury.

Section 3. Authority to practice medicine under this law shall be a certificate from the State Board of Health, and said Board shall, upon application, issue a certificate to any reputable physician who is practicing, or who desires to begin the practice of medicine in this State, who possesses any of the following qualifications: First. A diploma from a reputable medical college legally chartered under the laws of this State. Second. A diploma from a reputable and legally chartered medical college of some other State or country, endorsed as such by the State Board of Health. Third. Satisfactory evidence from the person claiming the same that such person was reputably and honorably engaged in the practice of medicine in this State prior to February twenty-third, one thousand eight hundred and sixty-four. Applicants may present their credentials by mail or proxy, and the Board shall issue its certificates to such applicants as are entitled thereto as though the applicant was present. All certificates shall be signed by the president and secretary, and attested by the seal of the Board, and not more than two dollars shall be charged for any certificate.

Section 4. Nothing in this law shall be so construed as to authorize any itinerant doctor to register or to practice medicine in any county in this State.

Section 5. The State Board of Health may refuse to issue the certificate provided for in section three of this article to any individual guilty of grossly unprofessional conduct of a character likely to deceive or defraud the public, and it may, after due notice and hearing, revoke such certificates for like cause. In all cases of refusal or revocation, the applicant may appeal to the Governor, who may affirm or overrule the decision of the Board, and this decision shall be final.

Section 6. Nothing in this law shall be so construed as to discriminate against any particular school or system of medicine, or to prohibit women from practicing midwifery, or to prohibit gratuitous services in cases of emergency; nor shall this law apply to commissioned surgeons of the United States Army, Navy or Marine-Hospital Service, or to legally qualified physicians of another State, called to see a particular case or family, but who does not open an office or appoint any place in this State where he or she may meet patients or receive calls.

Section 7. It shall be the duty of the State and local Boards of Health to bring to the attention of the courts any violations of the provisions of this law within their respective jurisdictions.

Section 8. Any person living in this State, or any person coming into this State, who shall practice medicine, or attempt to practice medicine in any of its branches, or who shall perform, or attempt to perform, any surgical operation for or upon any person within the limits of this State, for reward or compensation, in violation of the provisions of this law, shall, upon conviction thereof, be fined fifty dollars, and upon each and every subsequent conviction shall be fined one hundred dollars and imprisoned thirty days, or either or both, in the discretion of the jury; and in no case, where any provision of this law has been violated, shall the person so violating be entitled to receive compensation for services rendered. To open an office for such purpose, or to announce to the public in any other way a readiness to practice medicine in any county, shall be to engage in the practice of medicine within the meaning of this law.

Approved April 10, 1893.

PRELIMINARY PROGRAM OF THE SECTION ON GENERAL MEDICINE OF THE PAN AMERICAN MEDICAL CONGRESS.—The following gentlemen have promised to read papers before this Section: E. L. Shirley, Detroit; C. G. Stockton, Buffalo; F. Peyre Porcher, Charleston; J. H. Musser, Philadelphia; Manuel Carmona y Valle, Mexico; J. D. Bush, Aurora, Texas; Eliza M. Mosher, Brooklyn; F. G. Novey, Ann Arbor; R. L. Miranda, New York; S. Solis-Cohen, Philadelphia; I. N. Danforth, Chicago; W. S. Christopher, Chicago; C. S. Bond, Richmond, Ind.; David Inglis, Detroit; J. C. Wilson, Philadelphia; A. L. Loomis, New York; H. A. West, Galveston; Geo. Dock, Ann Arbor; Francisco A. Risquez, Caracas; W. K. Vance, Bristol, Tenn.; John J. Abel, Ann Arbor; Judson Daland, Philadelphia; Wm. Osler, Baltimore; James Tyson, Philadelphia; Henry Sewall, Denver; N. S. Davis, Jr., Chicago; W. C. Dabney, University of Virginia; Wood Hutchinson, Des Moines. There will be time for a few more papers in this Section. Any one desiring to present such a paper will please communicate the fact to the undersigned.

V. C. VAUGHAN.

Ann Arbor, Mich.

At the annual meeting of the Illinois State Medical Society held in Chicago, May 16, 17 and 18, the following officers were elected: President, Dr. O. B. Will of Peoria; treasurer, George B. Treider of Springfield; secretary, John B. Hamilton of Chicago; assistant secretary, E. J. Brown of Decatur. Adjourned to meet in Decatur, May 3, 1894.

At the annual meeting of the South Carolina State Medical Society, held at Sumter, April 19 and 20, the following officers were elected for the ensuing year: President, Dr. John L. Ancrum of Charleston; first vice-president, Dr. James C. Willcox of Darlington; second vice-president, Dr. A. J. China of Sumter; third vice-president, Dr. Thomas P. McCoy of Laurens; corresponding secretary, Dr. M. P. Ravenel of Charleston; treasurer, Dr. W. P. Porcher of Charleston; Dr. Charles M. Rees of Charleston. The Association adjourned to meet in Rock Hill on the fourth Wednesday in April, 1894.

At the annual meeting of the Iowa State Medical Society held at Burlington, May 17 and 18, the following officers for the ensuing year were elected: President, Dr. L. Schooler of Des Moines; first vice-president, Dr. A. C. Wright of Carroll; second vice-president, Dr. H. B. Young of Burlington; secretary, Dr. C. S. Chase of Waterloo; treasurer, Dr. Skinner of Cedar Rapids; assistant secretary, Dr. C. E. Curry of Des Moines. The society will meet at Des Moines in 1894.

THE JOHNS HOPKINS MEDICAL SCHOOL.—The *Maryland Medical Journal* states that the new medical school will open in accordance with the trustees' agreement with Miss Garrett, next autumn, in a temporary abode. There will be two stories built over the pathological laboratory of the University, and one of these will be occupied by the Garrett department for one season, or until the elaborate buildings designed for the school can be erected.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from May 5, 1893, to May 19, 1893.

Capt. William G. Spencer, Asst. Surgeon U. S. A., leave of absence granted on surgeon's certificate of disability is extended four months on account of disability.

Major Samuel M. Horton, Surgeon (San Diego Bks., Cal.), is granted leave of absence for one month on surgeon's certificate of disability.

Capt. James C. Worthington, Asst. Surgeon, ordered to report in person to Col. Chas. T. Alexander, Asst. Surgeon-General, president of the examining board appointed to meet at New York City, at such time as he may be required by the board, for examination as to his fitness for promotion.

Capt. Blair D. Taylor, Asst. Surgeon, will report in person to Lieut.-Col. Dallas Bache, Deputy Surgeon-General, president of the examining board convened at Omaha, Neb., at such time as he may be required by the board, for examination as to his fitness for promotion.

A board of officers to consist of Col. Charles T. Alexander,

Asst. Surgeon-General, Lieut.-Col. George M. Sternberg, Deputy Surgeon-General, Major John Van R. Hoff, Surgeon, is appointed to meet at the call of the president thereof, at New York City, for the examination of such officers as may be ordered before it, with a view to determining their fitness for promotion.

Capt. Curtis E. Price, Asst. Surgeon, ordered to report in person to the president of the examining board at New York City, for examination for promotion.

Capt. Louis Brechemin, Asst. Surgeon U. S. A., relieved from duty at the Presidio of San Francisco, Cal., and ordered to Columbus Bks., O., for duty.

First Lieut. Charles Willcox, Asst. Surgeon, relieved from temporary duty at Angel Island, Cal., and ordered to Presidio of San Francisco, Cal., for duty.

Major Curtis E. Munn, Surgeon U. S. A., is hereby granted leave of absence for twenty days, to commence about May 24, 1893.

Capt. Richard W. Johnson, Asst. Surgeon, relieved from duty at Ft. Bowie, Ariz., and ordered to duty at Washington Bks., D. C.

Capt. William J. Wakeman, Asst. Surgeon, relieved from duty at Ft. Bidwell, Cal., and ordered to Ft. Thomas, Ky., for duty.

Capt. Robert B. Benham, Asst. Surgeon U. S. A., is granted leave of absence for six months on account of sickness. By direction of the Secretary of War.

APPOINTMENTS.

To be Asst. Surgeons with the rank of First Lieuts., May 12, 1893: Alexander N. Stark of Virginia; Charles Lynch of New York; John S. Kulp of Pennsylvania; Edward L. Munson of Connecticut; Charles E. B. Flag of South Carolina; James M. Kennedy of South Carolina; Guy C. M. Godfrey of Ohio; William F. Lewis of North Carolina.

PROMOTION.

Major Johnson V. D. Middleton, Surgeon, to be Deputy Surgeon-General with the rank of Lieut.-Col., May 3, 1893.

CASUALTY.

Lieut.-Col. Ely McClellan, Deputy Surgeon-General, died May 8, 1893, at Chicago, Ill.

OFFICIAL LIST OF CHANGES in the Medical Corps of the U. S. Navy, for the Two Weeks Ending May 20, 1893.

P. A. Surgeon E. H. Marsteller, detached from Naval Academy and to the practice ship "Constellation."

P. A. Surgeon S. H. Griffiths, detached from practice ship "Constellation" and granted four months' leave.

Asst. Surgeon S. G. Evans, detached from the U. S. S. "Monongahela" and granted two months' leave.

Asst. Surgeon Henry La Motte, ordered to the practice ship "Constellation."

Medical Directors D. Bloodgood and H. M. Wells, ordered as delegates to the American Medical Association at Milwaukee, Wis.

Surgeon-General J. Mills Browne, detached from duty as Chief of Bureau Medicine and Surgery May 10, and placed on the retired list.

Medical Inspector J. Rufus Tryon, detached from the U. S. S. "Chicago," and appointed Surgeon-General of the Navy and Chief of the Bureau Medicine and Surgery.

Medical Inspector A. A. Hoehling, Surgeon G. A. Bright and Asst. Surgeon George Rothganger, ordered to examination preliminary to promotion.

Surgeon Wm. Marlin, ordered to duty under the Supervising Surgeon-General Hospital Marine Service.

APPOINTMENTS.

John W. Branheim, of Virginia, commissioned as Asst. Surgeon, April 19, 1893.

Ezra K. Sprague, of New York, commissioned as Asst. Surgeon, April 19, 1893.

Emil Prochazka, of Wisconsin, commissioned as Asst. Surgeon, April 19, 1893.

PROMOTION.

Asst. Surgeon J. C. Perry, commissioned as P. A. Surgeon, April 19, 1893.

Asst. Surgeon A. C. Smith, commissioned as P. A. Surgeon, April 19, 1893.

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ORIGINAL ARTICLES.

WHAT BENEFIT CAN EAR-PATIENTS DERIVE FROM NASAL TREATMENT.

Read before the Illinois State Medical Society, May, 1893.

BY H. GRADLE, M.D.

CHICAGO.

The causative relation of naso-pharyngeal anomalies to diseases of the middle ear is so evident and well known that you will find reference to it in all text books of otology. To what extent, however, we can benefit ear patients by treatment of their nasal and pharyngeal disorders is a subject on which views still differ. While all the systematic treatises written by European otologists discuss the treatment of nasal conditions in connection with catarrh of the middle ear, they speak of the nasal anomalies as an occasional cause and as a condition favorable to the development and maintenance of the ear disease rather than as the regular starting point of the trouble. And until recently it was not the practice in most European ear clinics to pay much attention to the nose except when compelled by urgent nasal symptoms.

On the other hand American rhinologists have insisted very properly, that since middle ear diseases are usually a complication of nasal disorders, the primary trouble should receive full attention. Indeed the drift of discussion at several public meetings of rhinologists has been such as to create the impression amongst general practitioners that ear patients require nasal rather than aural treatment.

In view of this divergence of opinion and practice I wish to present to you the conclusions which I can draw from fifteen years of personal experience in this work.

In starting with the proposition that *most* affections of the middle ear are secondary to naso-pharyngeal disturbances, I refer by "most" not to the number of patients, but to the types of ear-disease. For there are certain forms of disease of the middle ear which have no etiological connection with the naso-pharynx. As such independent forms of middle ear disease I would rank progressive sclerosis of the middle ear, tuberculosis of the walls, rare instances of metastatic intratympanic suppuration due to traumatism or infection through the drumhead. But with these exceptions *all instances of disease of the middle ear are the complications of previously existing naso-pharyngeal anomalies*. It is true that the etiological view can not be tested in every case met in practice, but its correctness can always be shown whenever a patient is observed at the time his ear-trouble begins.

The relation of the type of ear-disease to the particular form of naso-pharyngeal disorder has not

been emphasized sufficiently in the literature. My own experience can be summarized in the following propositions:

1. Acute pharyngeal inflammations cause either suppuration or catarrh with serous effusion into the tympanic cavity.

2. Chronic naso-pharyngeal anomalies lead to the proliferating or adhesive form of middle disease, the so called dry catarrh of most authors.

3. Whenever an acute catarrh has been started in the middle ear by an acute naso-pharyngeal process in a patient presenting persistent anomalies in the nose or pharynx, the tympanic disease will follow a protracted chronic course. Moreover it is in patients with persistent lesions in the nose or pharynx that acute disease of this space is most apt to lead to middle ear complications.

The therapeutic influence of nasal treatment upon ear disease can be presented to the best advantage by passing in review the separate naso-pharyngeal disorders.

A. The acute inflammation of the naso-pharynx in scarlatina, measles and diphtheria follows a self limited course, which we can not abridge with our present means. Hence in these instances nasal treatment is of very little service for the relief of the ear complications. If the involvement of the middle ear appears as a suppurative inflammation, it will as a rule become chronic except in very young infants, unless locally treated. If it takes the form of serous catarrh, it will generally get well spontaneously, but always quicker and more reliably with aural treatment than without the latter. The same considerations apply to ear complications in acute tonsillitis and acute coryza. But if there exist any nasal obstruction or enlarged pharyngeal or faucial tonsils, tonsillar inflammation as well as nasal catarrh, be the latter idiopathic or an incident in influenza or any other infection, can take on a chronic course. In such case the catarrh of the middle ear is also very likely to become protracted and aural treatment alone will not often succeed unless the naso-pharyngeal inflammation be removed.

B. Of chronic lesions the most important one is the enlargement of the pharyngeal tonsil, commonly known as adenoid vegetations. It is only in rare instances that this condition does not lead to middle ear complications. The least frequent of these is the proliferating form or the "dry catarrh." I have observed it as a consequence of enlarged pharyngeal tonsil only in older children or after puberty and have found it scarcely affected by any purely aural treatment. But it always ceases to progress after the pharyngeal enlargement is removed, unless other retro-nasal lesions are present. Its occurrence seems to depend on the retro-nasal catarrh maintained by the enlarged tonsil. To what extent, however, the morbid changes in the middle ear and Eustachian

tube can recede in these instances depends on the length of time they have existed.

More common than the proliferating form are acute infections of the middle ear, occurring whenever any acute inflammation takes place in the nose or throat of patients with adenoid vegetations. In such patients the acute middle ear inflammation as a rule turns into chronic processes. Aural treatment will generally cure a suppurative otitis as well as a serous catarrh of the tympanic cavity, even without treatment of the pharynx. But relapses are so common, that the removal of the enlarged pharyngeal tonsil is an unavoidable duty. The performance of this operation, one of the most satisfactory of all surgical procedures, generally suffices for the cessation of any complicating middle ear catarrh, although the cure of the latter can be much hastened by aural treatment. But in case of suppurative otitis, the removal of its starting cause in the throat is not sufficient for a cure: the otitis itself requires local attention.

C. Chronic anomalies of the faucial tonsils are not as common a source of mischief in the ear as is enlargement of the tonsil at the roof of the pharynx. The influence of chronically inflamed or enlarged faucial tonsils upon the ear seems to be an indirect one, by maintaining persistent pharyngeal irritation. Whenever this exists, removal of the tonsil enhances the possibilities of aural treatment. But the operation on the tonsils does not by itself exert the prompt curative influence upon the ear complication, which is so striking after the removal of adenoid vegetations.

D. The chronic, but severe nasal irritation in ozaena, nasal polypi and syphilitic ulceration results often in a protracted catarrh of the middle ear with effusion. In these conditions ear treatment alone gives only palliative results, while after the cure of the nasal irritation a permanent recovery from the middle ear catarrh can be looked for if proper local measures are continued.

E. The most common cause of the often intractable proliferating or adhesive forms of middle ear disease is the so-called naso-pharyngeal or retro-nasal catarrh. There exists much confusion amongst different authorities as to what constitutes naso-pharyngeal catarrh and a variety of morbid processes have been described under this head. It is needless to quote all different views on this subject since you can find them well summed up in Bosworth's treatise on the nose. My own experience has taught me to sift clinical observations in the following manner:

The symptom common to all disorders of the posterior part of the nose and nasal part of the pharynx is the accumulation of viscid secretion in the space above the soft palate, and upon the presence of this symptom we must base the diagnosis of retro-nasal catarrh. But we can distinguish between various conditions which give rise to this symptom. One of these is a subacute inflammation of the upper pharynx, characterized by redness of the mucous membrane and the presence of a purulent secretion. This form of disease has in my experience been easily cured by astringents, except where there is nasal stenosis. Whenever I found ear complications it was the serous catarrh which followed the same course as the pharyngitis and was stopped by the cure of the latter. A second form of retro-nasal dis-

ease is the disorder described by Tornwald as inflammation of the pharyngeal bursa. It consists either of cysts in the substance of the pharyngeal tonsil or suppurative inflammation limited to an open recess in that structure. But these disorders have not been frequent in my practice and I have not seen enough of ear complications with them to speak authoritatively.

By far the most common condition constituting retro-nasal catarrh is that characterized by a viscid white or gray but not purulent secretion coming from the posterior choanae and accompanied by no lesion recognizable by the rhinoscope. In such typical cases the pharynx appears healthy and is not reddened. The posterior ends of the turbinated processes show no characteristic anomalies. It is true, anomalies are often present, especially hypertrophy of the posterior ends of the inferior or even all the turbinated bodies or flat tumefactions or vascular swellings on the sides of the vomer near its rear end. But since the characteristic symptom namely, the presence of viscid phlegm behind the nose does occur in cases where no such lesions exist I can not but regard them as secondary complications. While I do not know of any satisfactory pathological investigation of this disease, I can only interpret the clinical facts as indicating a persistent irritation in the posterior part of the nose probably due to a limited localized inflammation. It is this form of retro-nasal catarrh without characteristic lesions which constitutes the starting point of the so-called dry catarrh of the middle ear.

Bosworth deserves the credit of having proven that retro-nasal catarrh can be maintained by any nasal stenosis and benefited or even cured by the operative removal of the nasal obstruction. While I consider this observation an important advance in nasal therapeutics I can not agree with Bosworth's opinion that retro-nasal catarrh is always due to nasal stenosis. I have seen many instances of persistent post-nasal viscid secretion with perfectly free and unobstructed nasal passages. According to my observations post-nasal catarrh is the remnant of acute diffuse inflammation of the nasal passages. Without denying that nasal stenosis is the most frequent condition which determines such a sequel to an acute catarrh, I must insist that many of the spurs and ridges on the septum which obstruct the passage in old cases of retro-nasal catarrh are themselves the result—not the original cause—of the persistent retro-nasal irritation and that in many instances the caliber of the nasal passage was not encroached upon when the disease began. Still even these late obstructions complete a vicious circle and serve to maintain the retro-nasal catarrh. On the other hand nasal stenosis of different degrees may exist a lifetime without leading to chronic retro-nasal catarrh. The etiology of the latter evidently depends also on other as yet undetermined conditions.

In opposition to Bosworth I must also claim that it is not the nasal stenosis as such which leads to the adhesive middle ear disease, but that this complication depends on the retro-nasal catarrh, for I have often seen the proliferating middle ear disease in connection with retro-nasal catarrh but with perfectly clear nasal passage, while I have never seen this form of ear trouble in patients who had nasal stenosis without post-nasal catarrh. If patients

with obstructed nose, but without chronic post-nasal catarrh get ear trouble during an acute attack of naso-pharyngeal inflammation it is usually the secretory form of middle ear catarrh which yields readily to aural treatment, provided the naso-pharyngeal inflammation does not become chronic.

The prognosis of the adhesive form of middle ear disease coincides with the prognosis of the post-nasal catarrh. If we can benefit the latter we can arrest the disease of the middle ear. But whether we can improve the patient's hearing depends on the condition of the middle ear at the time. If the disease has existed long there are probably adhesions which can not be recovered from, and while the patient may lose the feeling of fullness in the ears and the harassing noises we may only be able to promise him an arrest of, but not a recovery from his deafness. In recent cases of a duration of only some months the prospect for the hearing is generally, but not always better.

Where the catarrh is maintained by nasal stenosis, the operation of the latter cures the ear provided it cures the catarrh. But operations for nasal stenosis are not always as successful as writers would have us believe. If a septum shows a sharp crest it is not difficult to cut it off, but when the septum is simply crowding one side, either by a convex deflection or by a diffuse thickening, it is often not possible to restore nasal patency.

Cauterization of the inferior turbinated bodies is an operation which is even more often performed uselessly in retro-nasal catarrh than resection of septal prominences. While the removal of really hypertrophied or turgescient cavernous tissue may prove of great service in clearing the narrow passages, the burning of a mucous membrane which on account of the narrow space is incapable of swelling, gives often but great annoyance and no permanent benefit to the patient. Whenever there is appreciable hypertrophy of either the posterior ends of the turbinated bodies or of the lining of the vomer its operative treatment improves the post-nasal catarrh and with it the ear disease.

But I must repeat there are plenty of instances of post nasal catarrh without obstructive lesions and the treatment of these cases and the prognosis of their ear trouble are at present very unsatisfactory.

A review of these observations from the aural point of view leads to the following conclusions:

1. Acute suppurative inflammation of the middle ear if not treated has a tendency to become chronic, the tendency increasing with the age of the patient.

2. Chronic suppuration of the middle ear rarely heals without ear treatment. Neither acute or chronic purulent otitis are influenced by nasal treatment, but the liability to relapses after their cure is decidedly lessened by the removal of naso-pharyngeal anomalies.

3. Acute catarrh of the middle ear will generally terminate in complete recovery under aural treatment and sometimes even without it, provided there are no persistent nasal or pharyngeal lesions. But when these are present the disease is more likely to become chronic in spite of aural treatment, and in many instances can either not be cured or if improved will speedily relapse unless the normal state of the nose and throat is restored.

4. Proliferating or adhesive disease of the middle ear is the consequence of retro-nasal catarrh and its

course is determined by the course of the disorder causing it. Aural treatment alone is practically useless in this form of trouble, while nasal treatment, if successful as far as the catarrh is concerned, will also arrest the ear disease. The restitution of hearing, however, depends on the length of time the disease has lasted and is often aided by ear treatment after the cure of the retro-nasal catarrh.

THE LIMIT OF HUMAN LIFE, AND HOW TO LIVE LONG.

R. H. DALTON, M.D.

ST. LOUIS, MO.

By common consent, human life has been limited to three score years and ten since the time of King Solomon, with a small minority surpassing that limit and a few who have lived a hundred years or more; and with conditions of life unchanged the period would doubtless remain the same. The conditions of life, however, have already changed. The influence of hygiene and measures of sanitation practiced since the beginning of the last half century, together with the wonderful discoveries and inventions employed for the comfort and protection of mankind generally, have unquestionably raised the lifetime of a generation several years. Moreover, this rising average must continue while popular education of the masses is becoming a universal policy, and the laws of health laid open to the people by the secular press everywhere; and now even the octogenarian may hope to spin out a few more years.

To man, life has ever been a matter of deepest concern and speculation has never ceased to pry into its mysteries, but the *art of living* seems to have been left to the promptings of appetite alone, until dietetics became a science, chemistry had revealed the properties and qualities of food, and physiology had clearly defined the functions of nutrition; and these have made possible the enjoyment of health and exemption from diseases leading to death.

Viewing the periods of life from childhood to old age, we observe remarkable changes. The child nourishes with avidity in compliance with nature's demand for material to build up the organism to full maturity of manhood, and the process of digestion is vigorous and complete. If food is taken in excess or of injurious quality, it passes off readily up or down as a harmless encumbrance; but this immunity is gradually diminished as growth proceeds until, finally, the acme of life is reached at the age of forty-five, when a new curriculum begins.

Heretofore pabulum has necessarily been expended for the purpose of development, as well as for ordinary waste incident to any period, but henceforth only the latter calls for a supply, inasmuch as the structure is now complete. The architect has finished the job and nothing more can be added without impairing its value or thwarting the design.

For some years yet self-indulgence may be tolerated, but always with more or less risk. If the habit of taking nutriment in quantities adapted to early life is continued, the surplus left after the loss by waste is supplied must either be cast off with much greater difficulty as age advances, or deposited as fat among the tissues to impair their functions. This is inevitable, for as manhood wanes imperceptibly into old age all the energies must participate in the de-

cline, though failure may not be obvious at any particular time.

For some years past, reported deaths from "heart failure" have become frequent and fashionable among practicing physicians, and perhaps the reports may have been true, but not the whole truth, for it is probable that, in nine cases out of ten, the heart failure was secondary and brought on by an ineffectual effort of the stomach or alimentary tract to cast off indigestible matter clogging the way.

It would be well for physicians to recognize the significance of that wonderful aggregation of nerve cells constituting the solar and semilunar plexuses behind and contiguous to the stomach and bowels. They are the power houses sending forth energy to run the whole machinery of digestion; and when that power fails the main link binding the whole fabric together is broken, and then of course the heart, as well as other organs, *must* fail. Hence the importance of regulating diet as age advances to serve nutrition according to the power of digestion remaining.

In earlier life, when nitrogenous elements were required for the construction of solid tissues to serve the purposes of growth, meat was freely consumed and easily digested, as it contains more of that element than anything else available: but growth having ceased, there is now no longer a call for more than a small amount to supply the deficiency occasioned by ordinary waste. We say a small amount because it is well known that nitrogen once incorporated in the solid tissues holds its position for a considerable length of time, and is with difficulty eliminated from the blood when circulating in noxious forms. Therefore little meat is required, except for laborers who exhaust their muscles. From all this we may safely aver that persons on the down grade of life who fail to modify their habit of diet according to the rule suggested, will be constantly liable to attacks of disease—even Bright's disease, that most miserable misnomer. If statistics could be kept showing the real causes of all deaths occurring between the ages of forty-five and seventy-five, the result in all probability would prove that more than half fall victims to disease engendered by gastric indulgence.

The habit of constipation is another serious obstacle in the way of long life. Its progress is slow and so insidious as to beguile the sufferer into the belief that it is not pernicious or worthy of attention; and so apprehension is lulled, while the foundation of some fatal chronic disease involving important organs is being laid. Its general prevalence is traceable to more than one cause; the principal one, however, is the habit of procrastinating the daily evacuations of the bowels, which usually begins in early life, though the habit may be contracted at any age. According to the rules of decency, opportunities are not always present when inclination prompts, and the act of defecation is, therefore, deferred to a more convenient time. This procrastination becomes a permanent habit and chronic constipation must ensue. The malady seems to be peculiar to the human race as a result of these circumstances, while all other animals, unrestrained by social ethics, drop their ordure at a moment's warning, wherever they may be; and doubtless even these inferior animals would be afflicted with constipation also, were they subjected to similar restraints.

The morbid influence of habitual constipation on

an organism, otherwise healthy, is an interesting study, but easily understood. The fecal mass having traveled down through the long digestive conduit, finally subsides into the colon and rectum in a complete state of decomposition—a mass of ptomaines to be seized by the active absorbents of these receptacles and thrown back into the general circulation, poisoning tissues wherever they go and defying the liver, kidneys, or any other emunctory to cast them out of the system. Congestions, inflammations, abscesses, and all the catalogue of pathological complications are liable to ensue. Most likely a large majority of chronic diseases take their origin from this cause.

When troubled with constipation it is usual to resort to purgatives, which afford temporary relief, but usually have a tendency to confirm the disease. Enemata are sometimes used with no better results, for beside being a bungling remedy they have no permanent influence in overcoming the habit. Bread made of unbolted rye or wheat meal is an excellent remedy, but not being in common use few patients can be sure of getting it regularly, especially if engaged in active pursuits as many are. Before the habit is firmly established, eating desserts at dinner every day is apt to afford some relief, and if there is no habit of constipation it may act as a preventive. In early life the writer of this adopted a pill containing rhubarb grs. 2, aloes, gr. 1, jalap gr. 1, ipecac gr. $\frac{1}{2}$, castile soap, gr. $\frac{1}{2}$, sulph. strychnia gr. $\frac{1}{10}$, to be taken *every night* as a regular habit, and to be followed *every morning* by a copious draught of cold water. The pill without the water was not strong enough to thoroughly evacuate the bowels at one motion, but *with* the water the effect was invariably produced *without purging*. And since that time, much more than fifty years ago, the habit of taking one of these pills every night and a tumbler of cold water in the morning has seldom been neglected. The pill has no special claim to superiority over others, its only advantage, if any, being attributed to accuracy of combination and dosage, and perhaps, the small amount of strychnia.

Observing the gentle and never failing action of this pill in relieving constipation, it soon became a standing remedy for hemorrhoids on the theory that constipation is one of the chief causes of that troublesome disease; and now after the experience of a lifetime, not a single case of failure is remembered, nor does it seem probable that it can fail when we take into consideration the physiology of digestion.

Allusion has already been made to the decline of vital energy as age advances, and among all the special forces of the organism *peristalsis* of the alimentary tract is the most appreciable example. When that function fails, constipation is inevitable, and when that habit is fairly established we may look out for some organic or constitutional disease to jeopardize the expectation of long life. But if any harmless means can be improvised to accelerate the retarded peristaltic movement merely up to the speed of normal action and keep it so without actual purging, then all the coöperative powers of digestion will certainly conform to the altered condition, and health will be maintained.

To suggest the methodical use of cold water as a beverage in the absence of thirst, as a means of augmenting the chances of longevity, might seem to render one liable to be called a crank, if not a luna-

tic, but nevertheless, the idea claims a physiological origin and is well supported by experience. Solid and dry as the human body appears, water constitutes more than three-fourths of its bulk, and all the functions of life are really carried on in a water-bath. And although the sense of thirst may be trusted to call for a draught of cold water when required, that offers no reason why it may not be beneficial in the absence of thirst. Many persons drink no water between meals, and as a majority of the population are more or less sedentary and not provoked to thirst by exercise or difficult digestion, abstinence may be regarded as a general rule, unless we include the swilling of beer and other useless stimulants. In the latter stage of digestion, when comminution of the mass is incomplete, it is much facilitated by a moderate draught of water, which disintegrates and dissolves it, fitting it for emulgence and preparing it for assimilation. Hence, we may infer that the habit of drinking water, at least once between meals, contributes to health, and indicates the fact that those who visit health resorts at springs for the purpose of imbibing their waters, might profit by staying at home and drinking more water and less whisky. Water is the universal solvent of nature and a chief agent in all transformations of matter and combinations of mind. When taken into an empty stomach it soon begins to pass out through the tissues by an osmotic process into the circulation to liquify effete solids, that they may float away to excretory organs to be cast out. This benign influence, favoring healthy retrogression, is always more or less thwarted when it is combined with stimulants, which tend to the suspension of that important process.

Life is a continuous warfare, a struggle with natural forces constantly tending to dissolution, and every passing year leaves it with diminished power to resist unceasing assaults until death terminates the contest; nor is recuperation from injury resulting from the conflict less weakened by the progress of age. Diseases of manhood come and go with little apprehension of danger or death, while the same seldom fail to prostrate an aged man and imperil his life. Hence, the danger of any kind of self-indulgence or exposure when the signs of age are upon us. Truly does it behoove every young man, while buoyant with hope and unfaltering energy, with a constitution able to expel the onslaughts of disease, to patiently delve and lay up *under lock and key* the wherewithal to tide him over the last stage of human existence with a full sense of personal independence; for under such circumstances the few years of an octogenarian with reasonable health might prove to be the most interesting part of his life.

Allusion should be made to one more cause of life failure peculiar to old age, which carries off a very large number of men between the ages of sixty-five and seventy-five—indulgence in sexual passion. According to nature, there is a time for all things, and certainly procreation is no exception, for on the principle that like begets like, it should be confined to the period of manhood, when inheritance can bring forth the best of the species. Violation of this law involves a penalty—degeneracy of offspring and loss of vital energy to resist disease. A salacious old man always breaks down and passes away before he reaches the glorious time of an octogenarian.

St. Louis, Mo., May 3, 1893.

THE EXPERT WITNESS.

Read before the Michigan State Medical Society May 11-12, 1893.

BY F. J. GRONER, B.S., M.D.

GRAND RAPIDS, MICH.

An eminent jurist divided the medical witness into "the liar, the d—liar, and the expert witness." As much as the expert medical witness may be abused, or abuse his privilege—he has his use. Certain cases affecting the life and property of an individual, the sanity or insanity of a subject, the clearing up of mysterious deaths, and cases of poisoning require medical knowledge for their proper elucidation. Physicians from their special knowledge are likely to be called on at any time to give evidence in cases of murder, suicide, infanticide, criminal abortion, accidental death, rape, drowning and numerous other cases. But there is no class so likely to be called on the witness stand as the surgeon, unless it should be the expert neurologist. This makes some knowledge of legal medicine a necessity.

Medical experts have been subjects of much severe and bitter criticism from several causes. 1. There has never been sufficient instruction given on medico-legal subjects to protect professional reputation. 2. There are two sides to every question, and a physician feels it his duty to work for the party by whom he is employed. The expectation on the part of counsel, that the medical expert will testify in his favor, is in itself a bar to the procurement of unbiased opinions.

Elwell says, "It is a constant source of complaint on the part of writers on medical jurisprudence, and indeed of elementary law writers of high standing, and also of the medical witness himself, that medical testimony is not appreciated or treated by the legal profession with the consideration its character and value warrant. There is too much ground for these complaints. He does not always receive at the hands of members of the bar that courtesy and candor to which he is entitled. Yet it is not to be denied that the 'doctors' who often intrude themselves upon the court and bar as the representatives of the medical profession, do, by their ignorance, self-conceit, and disgusting assurance and complacency, present so perfect an embodiment of egotism and imbecility, that every man of common sense is at once disgusted with the exhibition of groundless pretensions, and the worthy members of a noble profession have to bear unjustly the odiums and reproach thus wrongfully incurred and heaped upon it, through the impudence, imposition and ignorance of knaves and fools."

Members of the bar are as a rule not ready to admit the great significance and importance of the medical expert and he is not treated with the consideration and respect that his merits demand. The position of medical witness is much dreaded by many. This is not necessary when he thoroughly understands his subject and his privileges as an expert. However, while ignorance and deception, like death, may be triumphant in the sick room without being called to account or cross-examined, in open court they can find no refuge or protection, but will most certainly be exposed.

I have seen the physician on cross-examination so completely bewildered and put to such extremes for self-defense that he completely forgot who he was testifying for and was led into statements exactly contrary to his opinions.

The questions of fact which come up daily before our courts for adjudication, are constantly becoming more technical and intricate as time passes on; consequently the assistance of those whose thorough education and training are competent to explain and unravel these difficult questions, have virtually become a matter of necessity.

It is very important for a surgeon to know the law of expert testimony. The first question that comes up is how to secure the attendance of the expert witness at the trial. In his capacity as an expert, he cannot, like other witnesses be subpoenaed to attend the trial, but must receive and is entitled to special fees. (Wharton on Evidence.) By not accepting a subpoena you are not obliged to attend the entire progress of the trial, but simply go when needed to testify.

Elwell says, "The physician's life is not always seen though it may be felt. He has, for this reason, comparatively few opportunities to distinguish himself publicly. The lawyer, on the other hand has many. As a witness the medical man has an opportunity to show the world just what his position as a thinker is; just what the extent of his knowledge, and in what manner he handles and applies it; how he reasons upon the facts in his possession in making up the conclusions he gives to the jury as opinions. In short, on the witness stand his weight is accurately taken and his proper place assigned."

In regard to the value of a physician's testimony, he must first show his qualifications; second, his means of information in the particular case; then he can give an expert opinion.

The value of testimony will depend mainly on a man's proficiency in his profession. No man should presume to come upon the stand to enlighten the court in a difficult case, unless he is able to do so. It is impossible in this day to palm off ignorance upon a court and jury for true science. As to the degree of skill an expert should possess in order to testify, it is impossible to lay down any definite rule. It is always left to the court to decide as to his competency; judges have been very liberal in this matter. They expect but the average ability of members of the profession.

"All the careful study, close observation, correct reasoning, clearness of understanding, precision of thought necessary to carry the medical man safely through a life of active practice without rendering himself liable to a charge of malpractice or incompetency, is essential to constitute him a good reliable expert."

In questions of insanity extra qualifications should be required. An expert in this specialty should be skilled in three departments of science: 1. Law, sufficient to determine what is the responsibility, which is to be the object of the contested capacity. 2. Psychology, so as to be able to speak analytically, as to the properties of the human mind. 3. Medicine so far as concerns the treatment of the insane, so as to speak inductively on the same subject. If either of these factors is wanting, a witness can not be technically called an expert. (Wharton & Stille.)

The true function of the expert witness is not to substitute opinion for fact, but to offer reasonable and well grounded opinion as a basis of consideration, where facts themselves are from the nature of the case inapplicable and insufficient. The expert

presents the data, the competency and relevancy of which the court is to declare the law. (Wharton & Stille.)

The expert witness does not, as a general thing testify to matter of fact that comes within his own knowledge from the exercise of his senses, but he must give the deductions or inferences that are to be drawn from the facts as given by others—that is to say, certain facts being given he is to state the general principle which they indicate or involve, so far as it bears on the question at issue. There are several leading principles in regard to the examination of an expert witness. 1. He can not be examined as to matters of common knowledge, and as to whether certain matter belongs to an expert, is a question for the court to decide. (Wharton on Evidence.) The proper method is to ask certain hypothetical questions, based upon such a state of facts as are deemed by counsel to be warranted by the evidence, and if the jury find the assumed state of facts to be proven, the opinions of the expert are then admissible.

2. The expert can not be asked to give his opinion in any case upon controverted questions of fact. (Wharton on Evidence.)

3. An expert can not state his views on matters of moral and legal obligation. (Campbell vs. Rickards, 5 B & A., 846.)

Example: the opinion of certain physicians, as to whether a certain member of their profession had honorably done his duty to his medical brethren, was rejected on the ground that the jury was as capable of forming an opinion in the matter as the witnesses themselves. An expert may refresh his memory by reference to professional treatises relating to the subject in regard to which he is called upon to testify. Such works may be mentioned as a ground for the opinions advanced, but they are not allowed as evidence in the case. (Wharton on Evidence.)

In regard to the exclusion of reference to books, Justice Campbell says, "No one has any title to respect as an expert, or has any right to give an opinion on the stand, unless as his own opinion; and if he has not given the subject involved such careful and discriminating study as has resulted in the formation of a definite opinion, he has no business to give it. Such an opinion can only be safely formed or expressed by persons who have made the scientific questions involved matters of definite and intelligent study, and who have by such application made up their own minds. In doing so it is their business to resort to such aids of reading and study as they have reason to believe contain the information they need. This will naturally include the literature of the subject. But if they have only taken trouble enough to find or suppose they find that certain authors say certain things, without further satisfying themselves how reliable such statements are, their own opinion must be of very moderate value, and whether correct or incorrect, can not be fortified before a jury by statement of what those authors held on the subject. The jury are only concerned to know what the witness thinks and what capacity and judgment he shows to make his opinions worthy of respect; if the opinion of an author could be received at all, it should be from his own words, not in single passages, but in combination; and this as has been heretofore held, can not be done. It is excluded chiefly as both unknown as to value and as hearsay, and an attempt to swear to his doctrines

orally would be hearsay still further removed, besides involving the other difficulty of needing interpretation and responsibility." (*Med. Legal Jour.*, Vol. vii, p. 350.)

The court honors an expert's individual opinion as of higher value than that of an outside author. The court presumes, that from reading these authors, close thought and actual observation and experience, the witness under oath, subject to a cross-examination, will more certainly enlighten the case than if it depends upon the published opinions of authors who perhaps had a favorite theory to support, or an old prejudice to influence them on a question or subject constantly advancing. The author himself may have changed his opinions since the book was written. (Elwell.)

In a case recently tried in the Supreme Court of the State of Illinois, the following decision was given: *Siebert v. The People*, Supreme Court of Illinois. (Opinion filed October 31, 1892.) A practicing physician who is shown to be a graduate of a regular medical college, and to have practiced his profession for many years, is competent to give his opinion upon an hypothetical question setting forth the symptoms of a deceased person, whether the death was from the effects of arsenical poison, although he may not be shown to have had any case of such poisoning. A medical witness in giving his opinion as an expert, is not confined to opinions derived from his own observation and experience, but may give an opinion based upon information derived from medical books.

No question should be answered unless it is completely comprehended by the witness, and so shaped as to mean something. When a question involves various circumstances and several elements it should not be positively answered yes or no, but only answered by making the proper explanation. A hypothetical case must contain all of the elements of the case at the bar.

Expert witnesses who are testifying upon matters of scientific investigation should not be partisans of one side or the other of the controversy. The ends of justice would be better served if the body politic remunerated the expert and he did not depend on the side employing him for expert fee.

If the physician himself is a partisan it is obvious that his testimony is of small value. If he is a partisan he is quite sure to reveal the fact as soon as he opens his mouth, and his testimony will be estimated accordingly. Judge and jury will cast it aside.

Railroad surgeons are partisans under wealthy corporations, who are to work for the corporations and see nothing but maligners.

The party who employs an expert expects that he will say nothing to damage his case. The expert's character, position, professional reputation and influence will be to the employer's favor. But these very characteristics will arouse the opposite party to attempt every means to break down and destroy the effect of such testimony.

It is almost absolutely impossible to determine the mental condition or decide a question of responsibility in the present state of law relating to expert testimony. How can juries decide as to mental capacity when experts so-called are retained partisans of one side or the other of a controversy and brought in numbers into court, and testimony most contradictory given in profusion? There is hardly

a proposition advocated by one expert that another is not ready to deny. The jury is absolutely without valuable test by which it can determine the respective weight to be given to the different conflicting witnesses.

Any information gained while attending a patient is privileged. This is the common law rule. While a number of States, including our own, passed a statutory rule that "No person duly authorized to practice physic or surgery, shall be allowed to disclose any information which he may have acquired in attending any patient in a professional character, and which information was necessary to enable him to prescribe for such patient as a physician, or to do any act for him as a surgeon." Hence what seems the most important evidence is prohibited by a statute. We must remember that the lawyer is shielded from revealing the secrets of his clients, on the ground that it is necessary he should be acquainted with the real facts in the case, for the purpose of conducting the defense, and because life and property are at stake. Character and reputation are of equal importance. The patient communicates freely with his physician, that the physician may have every information on which to form an opinion, and any disclosure of such information on the part of the physician is to be condemned in the highest degree. This whole matter is one of professional secrecy in which the medical witness should be protected by special statute.

"To successfully fulfill the expectations of friends,—to vindicate an honorable profession from unjust reproach,—to render the malice or opposition of enemies or opponents harmless,—to sustain reputation and self respect, and above all to vindicate truth, by contributing to the ends of justice, the professional medical witness when he appears upon the stand, must understand well the general rules of evidence that govern him, and like all other witnesses who appear as experts, he must also understand thoroughly the specialty upon which he is called to express an opinion.

"Without this knowledge of the general rules of law that bear upon him as a witness he is constantly liable to interruption and reproof, which always embarrass the witness, and neutralize the effect of his testimony. With that fair knowledge, however, which any intelligent man may obtain of the general principles of evidence bearing upon him, a great and constant source of irritation is avoided, and the protection and respect of the court and counsel secured. Without it, though intelligent in other respects, discomfiture, disgrace and chagrin are almost inevitable; but possessing this knowledge of his rights and duties as a witness, and a clear and thorough knowledge of the special matter he is supposed to represent and understand better than others, there is no position in which he can be placed, more favorable to a rich harvest of honor, reputation and future success." (Elwell.)

NEW ENGRAVING FOR PHYSICIANS' OFFICES.—A new art publication from the painting by Robert Hannah of Harvey, demonstrating to King Charles the circulation of the blood, has been announced by Mr. J. Kinney of Brooklyn. The area of the engraved surface is 17x21 inches. The cost of the engraving is \$1.50 delivered. Mr. Kinney's address is 294 Dean Street, Brooklyn.

THE BILE SALTS, UREA, ETC., AS THERAPEUTIC AGENTS.

Clinical Lecture delivered at the Medico-Chirurgical Hospital, Philadelphia.

BY SAMUEL G. DIXON, M.D.

Young men, this intrusion upon your regular curriculum of medical study just now, when you are all hard at work preparing for arduous examinations, may not permit you to welcome the remarks I have to make regarding my new treatment for tuberculosis of the skin. However, as I was once in just such a perilous situation I will be exceedingly brief, and therefore trust you will take hearty interest in this, the most momentous medical subject of the day. This expression may sound exaggerated, until you call to mind the fact that one-seventh of the deaths in the human family are caused by tuberculosis. For this reason I have devoted some years to the study of this heretofore almost unconquerable malady. I expressed, in the *Medical News* of October 19, 1889, a probability of producing immunity by inoculations of an involution form of the tubercle bacillus. While engaged in that work, I discovered a toxic substance, produced by or in the tubercle bacillus, which gave most satisfactory results when injected into animals suffering with tuberculosis. (Proceedings of the Academy of Natural Sciences of Philadelphia, November 18, 1890).

This substance, since called tuberculin, was introduced into the human economy by Professor Koch, the results of which are yet *sub judice*. Personally, I have not yet felt justified in using tuberculin in man. My hesitation is due to its extremely toxic nature, and from the fact that I gravely suspect the micro-organism to be capable of spore formation. If so, it is possible that it would grow when introduced into a predisposed tissue, while it would appear dead when placed in the circulation of healthy animals, or those with artificially produced tuberculosis. This may account for the general miliary tuberculosis sometimes caused by its introduction into the circulation of man.

Having these possibilities before me when working with tuberculosis on the lower animals, my object being not only to cure consumption, but also to produce immunity, I recognized the fact that immunity exists in animals which have not had tuberculosis nor been inoculated against the same. At least this would appear to be so in man, when we consider the fact that one-seventh of our people have tuberculosis, while it is fair to believe that nearly seven-sevenths are exposed to the poison. This, most likely, is due to the difference in the constituents of the animal body, and yet we have been quite unable to recognize, either by a microscope or chemical examination, any difference between susceptible and non-susceptible tissues. Therefore, we are, while in this state of ignorance, obliged to look around for something that will indicate a possible difference and follow out any idea that has the least promise of rendering the body unsuited for the tubercle bacillus, or, in other words, for that which will change soil suited for its propagation and growth, to soil in which such growth can not be effected. With this in view, and recognizing that animals leading a sedentary life, and often fed on concentrated food stuff, frequently have sluggish livers, I proposed to introduce the bile salts into the cellular tissues of tuberculous animals. The first

results of this experiment I referred to as early as November 18, 1890, in the Proceedings of the Academy of Natural Sciences of Philadelphia. The taur-ocholate and glycocholate of soda were used, principally the latter, as it is much more abundant in many non-susceptible animals than in animals susceptible to tuberculosis. These salts also should help in the assimilation of fats, and, consequently, aid indirectly in the formation of new and healthy tissue. While these investigations, with many others which I will not now mention, were being worked out, I was looking around for pathological conditions not usually accompanied with tuberculosis, such as erysipelas, and others. Gout, however, impressed itself very favorably upon my mind as a condition that might be temporarily produced without doing injury to the patient, and, possibly, change the soil of tuberculous man, as gout and tuberculosis do not often coëxist.

The first results, based on the theory of the gouty condition being antagonistic to tuberculosis, were obtained in a few small animals, referred to in my article entitled "Reaction of the Amide-Gruppe upon the Wasting Animal Economy," *Times and Register*, September, 1890. In these experiments I used each member of the group, creatin, urea, uric acid, etc.

Since my first publication of the use of taurin, creatin, urea, uric acid, etc., I have obtained some most encouraging results. The action of taurin and urea on tuberculosis of the skin will be illustrated by a case, which I will show you to-day as it is under treatment by this group. One of the patches of lupus is practically dead. However, before showing you the case I desire to call your attention to the fact that since I began to use urea, a vegetable substance which might be considered a modification of urea, has come into use abroad as a therapeutic agent for tuberculosis, and, according to the reports, is promising in its action. From the fact that it so nearly resembles that which I have used with more or less success since 1891 I see no reason why it should not produce the desired change. My results, coupled with the favorable reports regarding the action of this vegetable product, thiosinamin, confirm the belief that the truth of my theory of changing the soil with these substances is now about to be confirmed, and we will be able from this on to treat successfully a large proportion of the cases of tuberculosis of the skin and possibly of the lungs.

While my theory has suggested the use of what I believe to be a remedy for tuberculosis in at least one of its forms, further scientific and clinical experience will likely explain the exact action of these substances upon the tissues affected with tuberculosis.

A CASE OF LARYNGEAL EPILEPSY.

BY JOHN KERCHER, M.D.

CHICAGO.

This disease is variously designated as laryngeal vertigo, laryngeal epilepsy, complete glottic spasm in adults, and in an article by W. Peyre Porcher, M.D., in *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*, Vol. xx, March 18, 1893, he refers to it as chorea laryngitis. This disease is of interest because there is very little found in our books on the subject; it is also of special interest to the neurologist and laryngologist; to the first because it is essentially a

neurosis (as at present the general accepted view) and to the second because most cases may come under his observation, and because they are most successfully relieved and cured by treatment directed to some part of the respiratory tract, as tonsillitis, pharyngitis, uvelitis, polyps and other abnormalities in the nose, etc.

Dr. Lennox Browne, T. R. C. S.E., 1887, on diseases of the throat, under Chapter xxiii, neurosis of the larynx on page 484, makes reference to nineteen collected cases by Leifferts, Chareot, Gasquet, Kries-hober, Gray, etc. I herewith give the history of a case under my observation:

Patient, male, widower. Wife and children died of tuberculosis one of which died of tubercular meningitis. White, age 42. Occupation machinist. I have known him personally for over three years. General habits: steady worker, drinks perhaps one glass of beer a day, is an active pipe smoker, and often chews smoking tobacco, especially before breakfast. Patient is neurotic from over indulgence in tobacco, especially chewing, drinking often black coffee and worrying over the loss of his family, etc.; often complained of being tired and unable to sleep, often had a dry cough due to chronic pharyngitis, tonsillitis and very lax, slimy looking uvula, aggravated by tobacco and "catching cold;" he often feared the cough to be tubercular, but I found no evidence. Has been under my care often for "biliousness," loss of appetite, and occasionally pharyngitis, tonsillitis, etc., and two years ago suffered from otitis media suppurativa with rupture of the drumhead, and copious discharge of pus, with severe mastoid pain. (This occurred immediately after the grippe). Considered operation on mastoid, but the disease terminated favorably without, under local and general treatment, the drumhead being restored.

Present hearing distance on affected ear as much as four feet, healthy ear two feet. Treatment was also directed to throat at time of ear trouble; has not been troubled with throat so much since as before.

Present illness.—Sunday, March 19, first noticed little tickling in the throat, next day felt little pain on each side of throat in superior region of larynx; no cough, but inclination to swallow all the time. Tuesday and Wednesday worse; somewhat oppressed in breathing, but not bad enough to prevent him from working. Wednesday at 10 A. M. while at work setting up a machine he was suddenly attacked with a complete closure of the glottis; did not lose consciousness, but could not give a description of what transpired as he said his memory was blurred; says he had several spasms, three or four; could not say how long each spasm lasted but thinks all together did not last longer than five minutes or six minutes, may have been ten minutes, during which time a physician who had been called, arrived. The patient was raised to his feet and ordered the hands and arms rubbed (massage) also gave whisky. The physician said the pulse was very high. Patient said he felt like swooning several times after getting over the spasms; felt very weak, also gives history of having had a cramp-like feeling in both hands which was relieved by rubbing, (massage) and trembled in legs and arms after spasms. This sudden attack was not preceded by cough, but felt a little irritation.

Examination two hours after. General condition; Patient is very weak, nervous, constipated for sev-

eral days. Local condition: tongue heavy furr, yellowish, throat irritable, uvula relaxed, elongated, slimy, resting on tongue, tonsils congested, enlarged, entire pharynx inflamed; raw beef appearance with patches of yellowish furr, vessels tortuous, prominent. There was a tendency to spasm upon attempting to examine with laryngeal mirror. Patient never had trouble with nose; is able to breathe freely through both nostrils so did not examine nose. Treatment: advised discontinuance of tobacco, but patient could not leave off smoking altogether. Internally

R. Hydrargyri chloridi, mt. gr. ii.

Fiat in charta, No. 4.

Sig: One every twenty minutes, also cod liver oil 5ss, with 8 gtt tinct. ferri chlor. P. C.

Also for the constipation:

R. Ext. aloes aquosi 4

Ext. nux vomici, 1

Ext. belladonna, 1

Resinoe podophylli, .50.

Re-fiat pill, No. 60.

Sig: One morning and night; if bowels get too loose, one a day.

As bowels did not act free enough gave occasional dose of calomel after. Locally sprayed with sol. Seilers tablets and had patient use same several times a day, after which a sabalol spray was used.

On the 24th of March, (two days after his first attack) I witnessed two successive attacks on the patient; he coughed previous to the spasm; the cough was voluntary; as he said he merely coughed to keep off the spasm. During the spasms the temporal arteries were prominent, the eyes staring, mouth wide open, with unsuccessful attempts at inspiration lasting perhaps twenty seconds; when respiration resumed it at first was jerky with choking noise in throat, no loss of consciousness. Patient would suddenly arise from chair, open the mouth wide, and pound himself on the chest at junction of sterno mastoid and make attempts at inspiration which was jerky, alternating with attempts at clearing the throat, followed by the symptoms already enumerated. Temporal prominence of vessels, pallor, staring eyes, etc.; there was no clonic or tonic spasm in the attacks that I witnessed. Kept patient on cod liver oil and general tonics and as the pills that I prescribed for the constipation did not act very well and the patient said they made him worse and tied him up, I advised to leave them off and I put patient on rubinant water every morning, which has and is still acting very well; his bowels having improved considerably. After using sabalol spray a few days I changed on to benzoinol with carbolic acid and iodine 2 gr. each to the 3i; during working hours made him carry Seilers tablets with him to use several times a day in solution as a gargle. Spasms gradually disappeared and throat and general health of patient improved with exception of some yellowish white patches in pharynx which I touched a few times a few days apart with salicylic acid in glycerine on a pledget of cotton which removed the patches entirely, but gradually. Patient was under observation from March 22 to May 7, 1893.

235 State Street.

In the *Union Medical* we find a formula for the preparation of wafers each containing three grains of benzonaphthol and a grain and a half each of poplar charcoal and magnesia. Four wafers given in course of a day.

A SYPHILITIC GUMMA OF UPPER EYELID RESEMBLING A DISLOCATED LACHRYMAL GLAND.

Read before the Chicago Ophthalmological Society, April, 1893.

BY W. A. FISHER, M.D.

CHICAGO.

Miss P., age sixteen, appeared in my clinic, Illinois Charity Eye and Ear Infirmary, September 24, 1892, with interstitial keratitis right eye. Patient has always been healthy except, her mother says, "had scrofula when a baby lasting until she was six years old," the eruption appearing only on head, face and neck. Father and mother healthy; three children living, youngest three years, oldest eighteen years, all healthy; eight dead—one typhoid fever, three diphtheria, one pertussis, one pneumonia, one drowned, one miscarriage. No specific history in parents or patient except as mentioned above. Ordered:

R.—Atropin Sulph., gr ii.

Aq Dist., ʒi. m.

Sig.: Gtts. ii in right eye; t. d. Internally increasing doses of kali iodide.

Patient gradually improved until October 20, 1892, when she noticed a growth in upper eyelid coming on suddenly and interfering with movements of the eye. On examining the tumor found it to be freely movable and could easily be pushed up, "seemingly" into the lachrymal fossa, where it would remain until forcibly closing the eye, when it would reappear in upper eyelid. It was a most interesting growth and diagnosed dislocated lachrymal gland, with a question mark. I then had all the men on duty that day, and a number of visiting doctors examine the eye. Some were quite positive it was a dislocated lachrymal gland; others not venturing an opinion. She was given the benefit of the doubt, growth replaced, put on pressure bandage and continued kali iodide. The eye became more irritable, the growth making it more irritable than it would otherwise have been. From October 20, 1892, to January 1893, many prominent oculists of this society saw her. I persisted with kali iodide but thought I had a rare case of dislocated lachrymal gland. Some of my friends were bold enough to say it could not be anything but a dislocated lachrymal gland. While I was treating her she naturally became impatient, not seeing any improvement, and consulted two of our oculists. But when they proposed an operation she timidly returned to me and possibly saved the profession of a report of one more case of dislocated lachrymal gland. At our January meeting I intended showing her to the society and then removing the growth, for at that time it had not decreased any in size, and the patient would be better off without it, no matter what the growth was, for it was producing a great deal of irritation. But she was out of the city at that time and thus saved herself the trouble of an operation. When I saw her again, about four weeks after, the growth was nearly gone. There has been no trace of it now for about a month, and the interstitial keratitis has entirely disappeared. The patient has been very irregular in her attendance at the clinic and for fear she would not be in reach when I wanted her I have had a good number of the society see her when the growth was at its height and several of you have seen her since it has all disappeared. Patient says she has been taking

the medicine according to directions all the time. —The old adage being true, "especially of hospital patients," operate them when you have a chance or they will get away. In looking up the literature of dislocated lachrymal gland I find only four reported—one a patient of Jager's who had similar history as this one; patient had interstitial keratitis for four weeks accompanied by protrusion of lachrymal gland, treated for five weeks, no improvement, cut down on tumor, made section and on examination found to be gland, pressed gland in position, put on pressure bandage, and with the inflammation caused by the cutting gland, remained in position.

Another, a case of Snell's, complicated with naevus of forehead and seemed to pass into the orbit. Patient, a hard drinker, during a fit of coughing dislocated the lachrymal gland. It was replaced with the finger and remained in position. Another, caused by caries of the orbit. Noyes reports one differing from any of the others, it coming on gradually, the patient being nine years old when he saw and removed it. In conclusion will say this growth was a specific gumma, and as gummas in this region are rare this case has seemed to me to be worth reporting. The growth may have come on slowly, she not noticing it at first. She might have taken medicine at first that was inert, or she may not have taken it at all. It at least shows us that growths of this kind should have persistent treatment.

907 Columbus Building.

PERITYPHLITIS—REPORT OF THREE CASES OF PERFORATING CÆCITIS.

BY F. C. SCHAEFER, M.D.

PROF. OF CLINICAL SURGERY NORTHWESTERN UNIVERSITY MEDICAL SCHOOL; PROF. OF SURGERY WOMAN'S MEDICAL COLLEGE; SURGEON TO WESLEY HOSPITAL.

It has been claimed by McBurney of New York, that 98 per cent. of all the cases called perityphlitis are really cases of appendicitis, and this statement seems to have been almost universally accepted by the profession of our country, for the term perityphlitis has been almost entirely dropped from the new text books and the writings of most surgeons, and appendicitis adopted as a substitute. This change of terms has been accepted with too great haste in our judgment and is in all probability one of the chief causes which leads to the great differences of opinion relative to the question of operating; for we shall find upon searching the literature of this subject that various conditions may be and in all probability are described under the term "appendicitis." I am led to believe through my experience that a larger percentage of cases of so-called appendicitis than we are aware of are inaccurately diagnosed. This, of course, will be difficult to prove, but when we look at the facts produced by practical experience, enough presumptive evidence can be brought forward to indicate that the assertion is not without foundation. How do we arrive at the facts concerning the statistics of appendicitis? 1. By noting operations. 2. By recording results of autopsies. But is it not reasonable to suppose that the greatest source for statistics for lesser diseases of the caput coli is lost in the fact that they recover (it is claimed by Treves that 90 per cent. of all cases get well spontaneously) so that no autopsies are made? I feel convinced that a simple catarrhal cæcitis with

an accumulation of fecal matter is mistaken for appendicitis much more frequently than is generally conjectured, having had at least five cases of this kind recently myself which recovered. In each, after the acute symptoms were subdued repeated colonic flushing brought away large quantities of dry lumpy fecal matter and the tumor vanished.

The cæcum is a pocket in which fecal matter accumulates and to what an extent may be readily imagined, when we think of the scores of patients who come to every physician complaining of chronic constipation. In many of them the cæcal pocket becomes overdistended by the weight of fecal matter in the ascending colon; in some the valve of Gerlach in the appendix is rendered patulous by the same cause, enteroliths other foreign bodies and frequently perhaps septic materials are pressed against the mucous lining; the fluid portion of the accumulations are absorbed; the residue becomes inspissated and impacted; then the bodily movements, a sudden jar from a jump or pressure in the effort at defecating produces a friction or tearing movement starting an irritation which leads to acute inflammation followed by the congeries of symptoms belonging to what is nowadays called appendicitis, but which might be more appropriately named if I may be bold enough to venture a rechristening of the condition a *cæcitis* or *pericæcitis*, until the exact condition can be made out with the knife, if it should become necessary or by other methods if possible. We say metritis and perimetritis, for inflammatory conditions of another portion; why not apply terms in an analogous manner here? In nearly every instance the cæcum is more or less involved even if the disease seems to originate in the offshoot or branch. The whole is greater than a part. As so large a percentage get well, not a vestige of the disease remaining, treated medically, it would certainly appear as if a large proportion of them could not have been appendicitis; for the pathology of appendicitis is such as to leave some local evidence of a pathological condition present for months or years after the attack, followed frequently by relapses, and even such evidence is not all sufficient to prove the case an appendicitis, as at least one case which I will report in this connection demonstrates. In considering this subject we are at once confronted by two problems: 1. Diagnosis; 2. The question of operation. In perusing the literature on "perityphlitis" and "appendicitis," which during the past four years has become extraordinarily voluminous, one is struck with the fact that most writers and operators take a radical stand for or against operative procedure, and those who favor operating are again divided upon the issue of "early or late" operations. It seems strange to the casual reader that minds experienced in the same kind of work should differ to so great an extent in considering questions of so practical a nature. There is an old axiom, "whenever pus is discovered let it out if possible." That the indications for the evacuation of pus in this instance is of greater import than in many other conditions or locations no one will dispute. What then causes the hesitation? 1. The difficulty lies in finding the pus. 2. The great danger to the peritoneum and its sequelæ. The first difficulty the surgeon will always be confronted with in a proportion of the cases. The second difficulty will be more and more ignored as we become more familiar with the work, and more perfect in anti-

septic surgery, and doubtless the interests of the patient in future will depend largely, if not entirely, upon the skill of the diagnostician. The symptoms which the majority of authors agree upon, to help establish the diagnosis of appendicitis and perityphlitis and I may say *cæcitis* and *pericæcitis* are as follows:

1. History of sudden onset, pain acute, frequently colicky, with or without chill.

2. In many instances vomiting immediately. In a large number vomiting does not occur until the second or third day.

3. Localized pain and tenderness in iliac fossa usual from onset. Frequently pain is diffused over the abdomen but soon becomes localized in most cases.

4. Point of tenderness can be made out with pressure of finger on the middle of a line extending from anterior superior spine of the ilium to the navel, called McBurney point.

5. Constipation usual (not constant).

6. Frequently œdema over iliac fossa with redness.

7. In many cases a distinct tumor can be felt.

8. Flexure of the right thigh.

9. Rigidity of the right rectus muscle.

10. There is more or less shock, the degree depending upon the gravity of the disease and quality of the patient.

11. After a few hours or days tympanitis occurs.

12. Pulse generally small and rapid. In plethoric strong persons the pulse may be large at the outset.

13. Percussion dull, unless distended intestine extends over the iliac fossa.

14. In a few cases a tumor can be felt in the rectum.

15. In a limited number fluctuation can be made out.

16. The tumor may disappear suddenly; a grave symptom, indicating rupture of the abscess wall, possibly into the iliac fossa; frequently into the peritoneal cavity.

As many of these symptoms are present with other conditions, it becomes necessary to differentiate from enlarged inguinal glands; osteo-myelitis of ileum; typhoid fever; hernia; intussusception; volvulus; hydro and pyo-nephrosis; abscess of the liver; lumbar abscess; pelvic abscess and ovarian disease.

Enlarged glands lead to confusion if suppurating or if much enlarged. The history of the case will usually clear the diagnosis.

Typhoid fever: Appendicitis has been mistaken for typhoid fever, especially when diarrhœa was present. A case of this kind was referred to in the *London Lancet*, Feb. 20, 1892. It can readily be eliminated at the beginning, but when encountered in the later stage we must depend largely upon the preceding history recalling the symptoms of perityphlitis and reason by exclusion.

Pyo-nephrosis and hydro-nephrosis have generally been preceded by symptoms of kidney or bladder trouble, while the tumor will be found to have descended from above the ilium.

Abscess of the liver gives history of hepatic tenderness, frequently more or less jaundice; there is the necrosed era of dullness extending downwards. The abscess in many cases was the result of suppurative disease elsewhere, from the portal circulatory area, catarrh of the gall bladder, osteo-myelitis or pyæmia.

Hernia will sometimes puzzle one, especially incarcerated hernia, an instance of which I vividly recall from my own experience, having been called to consult with a Chicago physician over a case of pain in the right iliac fossa. I found the patient a gentleman aged about forty years had moved his furniture into a new residence three days before; he helped to carry bedsteads, tables and other heavy articles up stairs and while so doing was taken with a sudden severe pain in the right groin and iliac fossa; he vomited almost simultaneously with the approach of the pain. My confrère was not at the patient's home at the appointed time, but had left word with the family that if I arrived before he did to go on with the examination so that no time need be lost. I therefore carefully examined his patient. He was nauseated, and extremely tender over the right iliac fossa. There was slight œdema here, the tissues were red, abdomen tense. The slightest touch caused him to cry out with pain. The right thigh

flexed the thighs upon the abdomen, a distinct gurgling took place and the tumor was gone. My confrère disputed the presence of the tumor, which he could now readily do. Nevertheless, all distress, vomiting and nausea ceased. A little tenderness only remained; the patient was out of bed in a few days ready to attend to business. There has been no recurrence of symptoms although three years have elapsed.

In hernia the attack is always sudden; vomiting is more frequent and follows the pain immediately as a rule. The distress is greater; the tender spot is located below the McBurney point. The constitutional symptoms are more profound from the start (unless perforation has occurred in appendicitis). The patient will bear less manipulation. In perityphlitis we can usually press the abdomen a little without giving extreme pain. Tympanitis follows much quicker in case of hernia, while constipation is almost constant. I have known of several cases

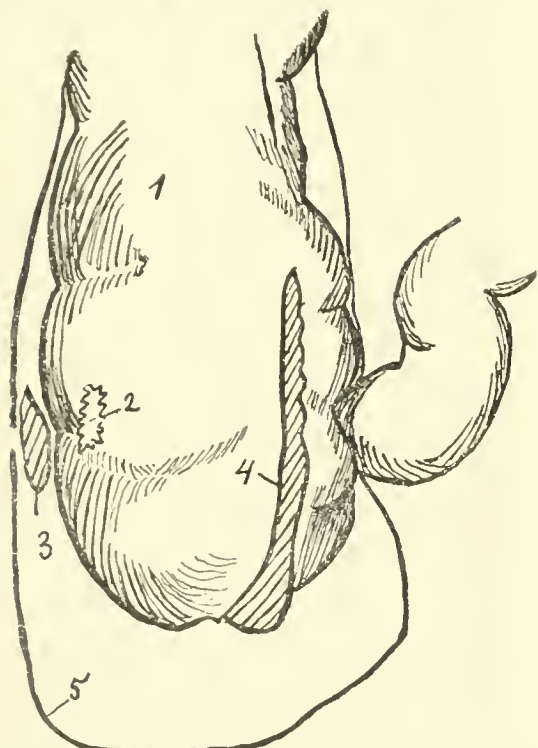


FIG. 1.—1. Caecum; 2. Cicatrix in the wall of the caecum through which enterolith escaped; 3. Enterolith; 4. Perforation process; 5. Abscess wall. The enteroliths consisted of fecal organic matter with inorganic deposits.

was somewhat flexed. A small distinct projection was plainly visible corresponding to the location of the internal ring. Felt the little tense projection with my fingers; it was round, circumscribed, perhaps two-thirds of an inch in diameter at its base. Being satisfied that it was hernia, possibly an enterocele or epiplocele, and that further manipulation was unnecessary, concluded to wait for the arrival of the attending physician. His first question was, "What is your diagnosis?" My reply was equally laconic, "Hernia." He responded, "We do not agree. In my opinion it is perityphlitis." Reasoning was useless. I proposed anesthetizing the patient with a view of reducing the hernia and satisfying my colleague of the correctness of the diagnosis. He administered chloroform; unwisely when the patient was relaxed instead of showing the tumor at once to my friend while the limbs were in extension, I

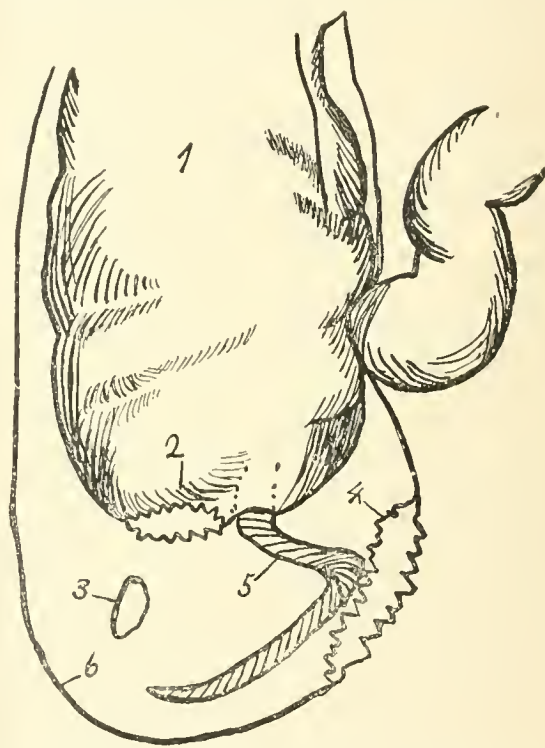


FIG. 2.—1. Caecum; 2. Perforation in caecum; 3. Enterolith; 4. Perforation in the abscess wall through which the pus and fecal matter escaped into the pelvis; 5. Vermiform process; 6. Abscess wall.

of perityphlitis to have open bowels before opiates were administered but have never known of a movement to occur in incarcerated hernia except when there was an accumulation in the rectum or colon. Lumbar abscess and osteo-myelitis of the ilium need only be mentioned in this assembly, as also abscesses in the pelvis of females already alluded to. Volvulus and intussusception must not be overlooked. Limit of time forbids my going further into detail.

In this connection permit me to report several of the more severe and interesting cases which have come under my observation, three of which commenced as a caecitis were followed by perforation of the caecum and pericæcal abscess.

Case 1.—Male, aged forty-two years. Relapsing perityphlitis. Was called to see this case in December 1890 by Dr. Joseph Haven who had already made the diagnosis and recognized the gravity of the situation. The patient was in a state of low muttering delirium. Pulse 120, very feeble and

small. Temperature 104° F. There was great oedema of the superficial tissue of the right iliac fossa, extending towards the navel. There was no tumor to be felt. This was on the evening of the seventh day. He had vomited more or less during the last three days. Bowels were not constipated. He had a movement daily. We concluded that an operation was advisable, but were guarded as to the prognosis. His wife did not wish to bear the responsibility of giving her consent to the operation in the absence of his relatives. She told us some could be at his side in thirty-six hours and if we thought it would be advisable she could telegraph at once and have them come over from Michigan, which she did. Thirty-six hours later in the presence and with the assistance of Drs. Jos. Haven, J. D. Skeer, and Frank B. Earle I made an incision beginning an inch inside of the anterior superior spinous process of the ilium extending obliquely downwards and inwards three inches; found the outer side of the cæcum; there was a large abscess beneath it in the iliac fossa. Opened it, let out nearly a pint of greenish pus from which there arose a distinct fecal odor; found debris of necrosed tissue. The cæcum was thickened; its vermiform process was firmly imbedded in exudative material behind the gut, and perforated near its base. As the patient was rapidly weakening I hastily washed out the abscess cavity, inserted a drain and closed the wound with silk. For about a week there seemed little hope for recovery. The temperature fluctuated between 96° and 97° F. Pulse 100 to 120. There was constant delirium with cold extremities. The abscess cavity healed in five weeks. After the eighth day the temperature began to rise, was normal on the twelfth day and during the following three weeks it varied between 98½° and 102° F. The patient had been accustomed to drinking liquor freely. He had a contracted liver. Suddenly during the third week his legs swelled enormously, ascites followed and when we began to feel that there was to be a cure to report our hopes vanished and an unfavorable prognosis was given. After six weeks there was a surprise in store for his friends and doctors. Suddenly the dropsy began to subside, in three weeks more he walked out of doors and is to-day, two and a third years from the time of operation a strong man, feeling better than he had for many years. He sailed on the lake last summer, commanded the vessel of which he was the captain. There is no tenderness or tumefaction to be felt in the right iliac fossa. No enterolith could be found.

Case 2. Perforating Cæcitis with Pericæcitis.—Mrs. T., aged twenty-three years. Married about three months, six weeks supposedly advanced in pregnancy. While visiting with relatives in a distant part of the city one Sunday in August, 1892, was taken suddenly ill with pain in the right iliac fossa, accompanied by vomiting. Her husband immediately brought her home in a carriage, a distance of eight miles, and called the nearest physician, who treated her for inflammation of the womb. Thursday morning I was called to see her. At this time there was great tenderness over the iliac fossa with considerable tumefaction in the superficial tissue over this area. The McBurney point could be made out; the right rectus muscle was contracted, the right thigh flexed. Nausea was almost constant. No tumor could be felt. Temp. 101° F. She had not menstruated for six weeks. Had always been "regular to the day," as she expressed it. Never had had any local disease. Bowels were regular before the sickness; constipated now. My diagnosis was perityphlitis. Treated the case with opiates administered per rectum; local fomentations. This diminished the tenderness and nausea. The temperature remained at 101° F. all day; on Friday it dropped one degree; Saturday morning it was 99° F.; Sunday morning 100°; midnight 101°. At this time the patient was depressed, while her features had a "pinched" expression which to my mind forebode no good. I immediately informed her husband that the time for operation was approaching. Monday morning at 9:30 (tenth day), with the assistance of Drs. J. Haven and L. B. Hayman, I cut down from about an inch above to the inner side of the anterior superior spine of the ilium, making an incision three inches long, obliquely downwards and forwards; found the outer side of the cæcum, discovered an abscess behind it. There was a slight perforation in the wall of the gut an inch to the outer side of the vermiform process. The appendix appeared to be healthy; it was in contact with the inner and back part of the cæcum, running upward. Washed out the abscess cavity, which was small, containing a tablespoonful of pus; no enterolith; fecal odor. Closed the perforation with Lembert suture; placed a drainage tube in the cavity. The patient made a good recovery; walked about the house four weeks later, and five weeks ago she

gave birth to a fine eight-pound boy. She is in good condition. No tenderness or induration exists.

Case 3.—Wesley Hospital Record, No. 570. Lady aged forty-seven years; married; has several grown children. Perityphlitis recurrent. Was sent to the hospital on the 7th day of November, 1892, by Dr. Danforth, with a view to operation. She had the usual symptoms, which commenced on the 4th of November. On the 9th of November late in the evening her symptoms, which were somewhat mild before, suddenly grew more severe, her pulse and temperature rose simultaneously. The interne telephoned the facts to the doctor, who kindly invited me to see the case with him. At 10:30 p. m. Dr. Danforth cut down to the outer side of the cæcum, making an incision three inches long. Found serum and pus in the iliac fossa from which arose a fecal odor. After diligent search we discovered a fine opening at what appeared to be the outer side of the cæcum; the inner side of this opening was blocked by an enterolith, which the doctor kindly loaned me to exhibit to you. As there was so much pus issuing from this apparent opening in the wall of the bowel we concluded that it might be the wall of an abscess cavity. Acting upon this idea Dr. Danforth enlarged the opening longitudinally, inserted his index finger through it and felt the caput coli floating in pus. He then washed out the cavity with bichloride solution. Next, thoroughly examined the tissues. The cæcum presented a cicatrix on its outer wall an inch above its head, through which the enterolith had evidently made its exit. This cicatrix was directly opposite the opening in the abscess wall already mentioned, which was blocked by the enterolith. The appendix was in contact with the inner wall of the bowel extending upwards. It was apparently healthy but was bound against the intestine by the lymph which existed upon the latter. It had a perfectly normal appearance. The abscess beyond question was due to the perforation of the cæcum with the escape of the enterolith and other matter from the gut. The patient rallied somewhat three hours after the operation, but soon the circulation again weakened and she died six hours later. Autopsy revealed adhesions of small intestines to the inner wall of the abscess, and a slight perforation of the peritoneum three inches above the pin-head opening in the abscess wall (Fig. 1).

I am indebted to Dr. P. C. Boomer, an interne, for the drawing.

Here we have three cases in which the vermiform appendix was not directly involved in the inflammation, with perforation of the cæcum, which surely could not be appropriately termed appendicitis. I therefore think it proper to name them *perforating cæcitis, followed by suppurative pericæcitis*.

Case 4.—Wesley Hospital Record, No. 580. Young married man aged twenty-four years. Four days before he was brought to the hospital he was taken with acute pain in the right iliac fossa. His physician noticed a distinct tumor above Poupart's ligament and warned him of the possibility of having to submit to an operation. Suddenly on Sunday afternoon four weeks ago, tenth day of disease, the tumor disappeared. The temperature dropped to 96½° F.; pulse became rapid, small and thready. He was then sent to Wesley Hospital for operation, a mile distant. Having been advised of the patient's coming I immediately went to see him. Found temperature 96½° F.; pulse 120. Could hold out no hope. His wife was anxious to have the operation done. I informed her that he might die on the table. Quickly opened the abdomen in the median line. Found the pelvis filled with fecal matter and pus. Cleaned it as rapidly as possible with sterilized water and bichloride solution, using sterilized water again before closing the wound (Fig. 2). Found the collapsed wall of an extensive abscess cavity with a rent over an inch long on its inner side. Passed a finger through this tear and felt a ring-like opening on the caput coli through which fecal matter had escaped. Washed out the cavity; closed the hole in cæcum with Lembert suture, using silk, carried drainage tube through the abdominal wall above Poupart's ligament. Closed the abdomen with silk running gut. Patient died immediately after operation was finished. The appendix lay loose in the abscess cavity, but was not diseased within; its walls did not seem thickened. Perforation in cæcum one-fourth inch removed from appendix. I here show you a small enterolith found in abscess.

These are perhaps exceptional cases. They, however, go to show that all of the varying conditions

that exist about the cæcum under the different terms in use to diagnosticate the disease are not yet fully understood, and that we must be prepared to meet anything excepting a stereotyped form of appendicitis. In addition to the above I herewith present a few cases reported by different surgeons which add weight to the assertion.

Dr. Lees (London *Lancet*, February, 1892), reported four cases of perforated appendicitis, in all of which the symptoms were remarkably mild:

Case 1.—Male, twenty-seven years old. Saw him first on the third day. Complained of slight pain in the right iliac fossa. There was no lump to be felt. Died of perforation on the fourth day.

Case 2.—Male, seventeen years old. Saw him first on the third day. Complained of pain about the navel; it soon settled to the iliac fossa. No tumor could be felt. Died on the fourth day of perforation.

Case 3.—Woman thirty-six years old. Local tenderness, loose bowels, which led her attending physician to treat her for typhoid fever. Vomited on the third day. Death occurred on the fourth day. Appendix ruptured in two places.

Case 4.—Boy aged eighteen years; waiter. While waiting on table was taken with severe pain. There was a slight tumor over right Poupert's ligament. Was operated upon eight hours after the pain was first felt. Abscess was found discharging into the pelvis. Patient recovered.

Of these four cases one recovered. Delay may have led to the death of the others, and yet the indications for operating were not clearly defined except in case 4. Dr. Lees concludes from this experience "that the character and grade of the symptoms have to be the measure of the need of operation;" and yet in the first three cases these were not strong enough to lead to operative interference. He says further, and I agree with him: "Cases having acute abdominal symptoms ought to be examined under anæsthetic." To this he might add, be prepared to operate at once.

Mr. Page (London *Lancet*, February 20, 1892), reported a relapsing typhlitis in a medical student in which the appendix was simply kinked and bound to a coil of intestine by adhesions. It was filled with mucus. He removed the appendix, completely relieving the patient after five years of suffering.

Dr. Powell, same issue of *Lancet*, urges that there may be cases of tumefaction in the iliac fossa unassociated with disease of the appendix, as a local inflammation of the caput coli, for which a purge was an efficient remedy. He takes exception to the term "appendicitis."

Prof. Axel Iverson (*Deutsche Medicinische Wochenschrift*), recently removed the appendix from two cases. In each the vermiform process was as thick as the thumb. All of its walls were greatly thickened. They contained no concretions; they were adherent to the small intestines and gave evidence of severe catarrhal inflammation. He claims the pathology of the disease has its origin in catarrhal inflammation of the mucous membrane, which at first augments secretion and causes great swelling, especially, about the valves of Gerlach; stenosis takes place here, the inflammatory process extending through the walls of the appendix soon causes adhesions to occur; the epithelium softens, disappears and ulcers form. Now the secretion diminishes, the swelling subsides in many cases, the lumen is reopened and resolution takes place. This he claims is the case with such that recover. F. Einhorn (*Münchener Medicinische Wochenschrift*, No. 78, 1891), found 100 cases of peritonitis from perforation of the appendix vermiformis out of 18,000 autopsies in

the Pathological Institute of Munich. He says of perityphlitis 91 per cent. of the cases are due to perforation of the appendix. Primary perforation of the cæcum occurs in only 9 per cent., caused by the pressure of foreign bodies, and in such cases usually by hardened and inspissated masses of fecal matter.

Herrman Mynter (*Deutsche Medicinische Wochenschrift*, April, 1891), asserts perityphlitis finds its start either in the cæcum or vermiform appendix, with predilection for the latter. Catarrh of the mucosa of the cæcum with dilatation is frequent where the inflammation extends into the appendix; it now becomes distended, Gerlach's valve is stretched open so that the contents of the bowel enter with ease and form concretions, the fluids being absorbed, leaving the solids inspissated, which are the mechanical causes of inflammation and relapses.

In view of the fact that so many different conditions are found with similar symptoms and all have been called appendicitis, there is no longer need for wondering at conflicting statements concerning the treatment. For under the one term we are treating altogether different states, and disagreements will take place until we can differentiate positively between the different pathological conditions that exist in the iliac fossa within or about the caput coli and its appendages; and yet it will not do to wait for a further solution of how to diagnosticate the disease. In the interest of the patient prompt action is necessary. It has been claimed by McBurney and others that 20 per cent. of all cases of appendicitis die under expectant treatment. It is our duty to save as many of these as possible. The question should no longer be, shall we operate early or late? but operate in time.

Until more exact data can be given it seems to me no better rule can be adopted than that of Keen of Philadelphia (*Annals of Surgery*, April, 1891):

"That by the second or third day *a fortiori* later the operation should be done if the following indications are present: 1. If there is abdominal pain most marked in the right iliac fossa. 2. If there is rigidity of the right abdominal wall. 3. If there is fever up to 100° to 102° F. 5. If by minute and careful palpation tumefaction and increased resistance can be discovered with possible dullness and rarely fluctuation. 5. If there is œdema of the abdominal wall pus will generally be found but it is possible that there may be none. If pus is present the cavity is to be evacuated and washed out with great care lest its frail walls will be broken down and general peritonitis ensue. If there is no pus the appendix should be sought and if swollen, thickened, distended, the seat of concretions or otherwise abnormal, even without perforation it should be tied, cut off, stump cauterized, inverted and covered with peritoneum by Lembert's suture through the outer coat of the cæcum. Moreover he would be decidedly in favor of operating even if there is present only iliac pain, tenderness at McBurney point, rigidity of the right abdominal wall, moderate fever and increased resistance, without tumefaction, dullness on percussion, nausea and vomiting." The carefully thought out rules as given above can hardly be improved upon by our present knowledge of the subject and I most heartily endorse and recommend them, but would add if the case is one of perforating cæcitis, close the opening if possible with Lembert suture. Finally I am strongly in favor of calling all inflammatory

processes about the head of the colon, in the iliac fossa, *cæcitis* and *pericæcitis* unless we are *absolutely* positive that some other disease is present. If 80 per cent. of the so-called cases of "perityphlitis" or "appendicitis" recover spontaneously, few leaving any pathological conditions after them as sequelæ, we may feel perfectly satisfied that a very large majority of them were simply cases of *cæcitis* or *pericæcitis*.

DIAGNOSIS OF TUBERCULAR MENINGITIS BY TUBERCULIN.

BY CHARLES DENISON, M.D.
DENVER, COL.

Of eight cases of confirmative diagnosis of tuberculosis, which I have thus far made with tuberculin (Koch's), where there was either no bacilli found in sputum or no sputum to examine, the following I wish to report as possibly the first diagnosis of chronic tubercular bassilar meningitis made by that means.

April 16, last, I was called to North Denver to see Dr. O. B. Gould of Newport, Vt., a physician who had evidently been a very hard worker, age 38. Family history peculiar and showing marked tubercular tendency; mother died of consumption and father supposed to have died of meningitis. Five sisters out of seven children died of consumption; one of these sisters had great pain in back of head, just like this patient, six years before her death, which pain had eventuated in a tubercular cough. Her son had severe headaches and died at the age of seventeen of consumption. Patient's wife had hip disease in youth and, following a possible tubercular disease of bowels and vagina, died of tubercular meningitis three years ago. The patient himself shows the scars of seton having been put in the back of his neck twelve years previous, when he broke down from excessive professional work and had meningitis.

Eight years ago he sustained fracture of ribs with some septicæmia resulting. Three years ago he had "la grippe" and double pneumonia, chiefly on right side; sick six months; came to Colorado at that time and gained a pound a day for seventeen days, and then returned to Vermont. Nov. 20, 1892, after a cough, had what was thought to be bassilar meningitis and has been sick since, most of the time in bed, and all the time for the past three weeks. Had slight blood spitting in November and night sweats in December and January. Weight was 192 in June, 1892, 170 on arrival in Colorado five weeks previously and 160 pounds then, April 16. He felt the elevation and his headache was worse after two weeks and remained so. He could hardly sit up long enough for me to finish my physical examination of his chest, which showed only slightly lessened movement, slight dullness, fremitus and feeble action on the right than on the left side; the ratio of movement being one and one-half for the left, and one inch for the right side. Though there had been before he left Vermont there was now no sputum to examine. Strongly suspicious that his bassilar trouble was tubercular, I proposed to make the diagnosis with tuberculin, and explained my intended mode of procedure. This he consented to, and next day was removed in a carriage to a large private

room in St. Luke's Hospital. The jarring of this two-mile ride made him so dizzy and helpless that it took two attendants to put him to bed. After two days his temperature was found to average 98½ F.; pulse 60, and respiration 20 without variation in any of these. Then at 12 M. I administered exactly one milligram tuberculin. The genuine diagnostic reaction did not commence till ten o'clock next forenoon and had not entirely subsided till early the following morning.

Its maximum, of pulse 82, and temperature 100.5°, was reached at 2 P. M., with a feeling of constriction around the base of brain and forehead, and at 6 P. M. he vomited. His headache went away with the subsidence of the reaction by daylight next morning. This was the first time he had been free from headache for six months. That day I gave him 1½ milligrams tuberculin, and reaction to 99.5° temperature, and pulse 80 was manifest in four hours, and in the night (2 A. M.,) temperature 100.5°, and pulse 90. The second day afterward when I called I found the doctor sitting up, dressed; had had a barber come to shave him and seemed in a very jovial mood. After congratulations on what he termed his "getting well," I said I was going to give him another dose of 1½ or 2 milligrams. He protested that he was well enough to go back to his rooms and promised to ride by my office and get "his jab in the back" on his way home next morning. Well, bright and early I found him at my office, whither he had walked two blocks and come in the electric car the rest of the way. In another week he was riding all around town, out all day and having no headache except a little one day when he allowed his stomach to get out of order.

In three weeks, (after reaching the 13 milligram dose), he felt compelled to go home to Vermont, to attend to some urgent unprofessional business. So, saying he felt as well as he ever did, he departed taking one of my milligram syringes and some lymph with him; the intention being to continue the injections every three or four days till 40 or 50 milligrams or more at a dose shall be taken. I shall hope to hear that he does well. Now I am wondering if some persistent headaches, not otherwise relieved, may not yet be cured by tuberculin.

Denver, Colorado, May 22, 1893.

SOCIETY PROCEEDINGS.

Illinois State Medical Society.

*Abstract of the Proceedings of the Forty-Third Annual Meeting,
held in Chicago, May 16, 17 and 18, 1893.*

(Concluded from page 587.)

SECTION THREE.—TUESDAY, MAY 16.

Dr. N. S. Davis, Sr., read a paper

ON THE INFLUENCE OF THE SHIP CANAL NOW BEING CONSTRUCTED
BY THE TRUSTEES OF THE CHICAGO DRAINAGE DISTRICT
ON THE SANITARY CONDITION OF CHICAGO AND
THE STATE OF ILLINOIS.

in which he held that the sanitary condition of the city depends upon the thoroughness of the soil drainage, proper disposal of sewage, abundance and purity of the water supply. Comparing two series of wards using the same lake water for drinking and domestic purposes, he found that the cause of infectious diseases was not due to the water, but to the difference in the condition of cleanliness of the premises, alleys, etc.; that in 1892, in localities where

crowded tenements abound and soil drainage and removal of garbage is not well provided for, the mortality from typhoid fever was nearly double that found in the more cleanly and better cared for localities. He thought that a better sanitary measure than the ship canal would be to increase the tunnels under the lake and keep a stream of water constantly flowing through every hydrant pipe emptying into the sewers, thus diluting the sewage and maintaining a constant current of water. He was convinced that if the proposed ship canal was completed it would not lower the death rate in Chicago 1 per cent. He said: "If the taxpayers of Chicago are willing to pay \$50,000,000 for enabling lake vessels to go through to the vicinity of Joliet instead of stopping at their own docks, let them do so; but do not longer propagate the delusion that they are to receive any material sanitary benefit therefrom."

Dr. Anne Hazen McFarland of Jacksonville, read a paper on

THE LUNACY LAW OF ILLINOIS.

Dr. McFarland strongly condemned the existing law, and called attention to the fact that many insane patients who might be easily cured if placed in an asylum at an early stage of the disease were rendered incurably insane through the delay, and the excitement connected with their commitment. She paid her respects to the sensational newspaper reporter who gets committed to an insane asylum for the purpose of writing up alleged abuses. She made a strong plea for a new law which should be more humane in its conditions. Her conclusions are: that the provisions of the present law relating to the commitment of patients to hospitals for the insane seem to be based on the theory that insanity is a crime rather than a disease. That strict forms of legal commitment are followed by a diminution of recent cases and a disproportionate increase of the chronic class, and an increasing tendency to look upon hospitals for the insane as places of illegal detention. That every State should have a law empowering judges to send patients to insane asylums for observation in case of doubt of their sanity. That voluntary commitment should be provided for by the law. That the lunacy law of New York should be adopted by the Illinois legislature.

The next paper was by Frank P. Norbury of Jacksonville, on "Insanity in its Relationship to Life Insurance."

WEDNESDAY, MAY 17.—SECTION ONE.

Dr. C. B. Johnson of Champaign, read a paper on

DIPHTHERIA IN CHAMPAIGN COUNTY.

He described Champaign county geographically as a level drift plain whose northern border was 750 feet and its southern border 650 feet below sea level. The water supply is derived from "surface" or shallow and from deep bored wells, some of them 250 feet deep; from the latter most of the water supply is obtained. Twenty years ago tile drainage was introduced, when a change was noticed in the character of prevalent diseases. The most marked was scarcity of malarial diseases and an increase of typhoid and diphtheria. He detailed several epidemics of diphtheria throughout the county, describing the methods of treatment and the results.

THE RELATION OF BRONCHITIS TO BRONCHO-PNEUMONIA AND OTHER DISEASES OF THE RESPIRATORY PASSAGES.

This was the title of a paper read by Dr. J. M. G. Carter of Waukegan.

The author said bronchitis was not a very fatal disease in the United States, the mortality being about 1,457 per 100,000 deaths, while in England the rate was 10,586 in 100,000 deaths. The actual difference between these two countries was probably less than here indicated as the statistics in

the United States were not so reliable as those of England. But there is still a great difference to be accounted for in part by the density of population in England as compared with this country.

Tables accompanied the paper which illustrated the frequency of occurrence of bronchitis and other respiratory diseases in different parts of the world as well as in parts of the United States. These tables illustrated the relations of these diseases. From a careful study of them we may be justified in the opinion that a larger number of respiratory diseases have their origin in bronchitis than is usually granted; that broncho-pneumonia is of more frequent occurrence than statistics indicate; and that statistics show that bronchitis and some other respiratory diseases are rare in the United States as compared with England, Canada and some other countries. It may be observed that this difference is due to the fact that these diseases are of a milder type in the United States, so that the percentage of mortality is less. Climatic differences must exert a great influence in producing this difference, for in London and New York City we discover a striking difference. The whole number of deaths from bronchitis in London constitute one-eighth of the total mortality, while in New York this disease causes but one-twentieth of the entire mortality. In nearly all countries it is found that the catarrhal diseases of the respiratory organs sustain a close relationship; and further that the maximum fatality of bronchitis generally precedes the maximum of broncho-pneumonia and pneumonia.

In the treatment of bronchitis medicated sprays and inhalations are especially recommended. Subnitrate of bismuth in powder or combined with eucalyptus in liquid, camphorated tincture of opium and carbolic acid in steam, and inhalations of alcohol and camphor or menthol, are particularly useful. Cough mixtures and tonics are necessary. Prophylactic treatment in the way of habituation to exposure may be advised in some cases. This is suggested by the slight susceptibility of the American Indians to this disease.

Dr. Wm. E. Casselberry, Chicago, read a paper on "Rhinitis in Children; its Causes, Variety and Treatment."

WEDNESDAY, MAY 17.—SECTION ONE—CONTINUED.

Dr. Mary H. Thompson, Chicago, read a paper on
A UNIQUE CASE OF TYPHOID FEVER WITH ITS COMPLICATIONS.

This case was unique to her because within eight weeks there were four periods of fever; one of two weeks followed by an interval of two days; the second was of two days followed by an interval of two days; the third of two days and an interval of eight days, and the fourth a period of thirteen days, which was nearly continuous paroxysm. The fever was presumably the effect of drinking unsterilized lake water; and there were two causes for its severity: one the effect of previous illness, and the other that her room had no direct rays of sunlight in it. Typhoid fever patients should be placed in well-ventilated rooms, and exposed to the direct rays of the sun.

The next paper was by Dr. Ludwig Hektoen of Chicago, on "Acute Ulcerative Endocarditis."

Dr. Frank Johnson of Chicago, read a paper on

EXOPHTHALMIC GOITRE.

The great variety of symptoms of this disease were described, and the results given of an observation of nineteen cases, varying in age from twenty to seventy years, the points of clinical interest in each case being given. The most potent factors in the causation of this disease seem to be a neurotic taint, or some strong emotion, as fright or grief. The treatment of the series of cases reported was based on general therapeutic principles; veratrum, digitalis, strychnia, arsenic, bitter tonics and iron being pre-

scribed according to the indications in individual cases. The patients were told to avoid fatigue and excitement. Of these cases, three apparently recovered, five improved, two remained the same, four passed from observation and the remainder are still under treatment.

The next paper was by Dr. Katherine Miller, Lincoln, on
MUCOUS COLITIS,

in which she gave in detail the study of two typical cases occurring in her practice. She reached the conclusion that when the digestive organs have been seriously disturbed by the excessive use of vegetable food it is only by a close adherence to a diet of pure protein digestibles in the stomach with attention to free excretion that these unhealthy elements can be substituted by normal cells within the bowels and throughout the whole body, and until this occurs a slight disturbance of digestion either from ingestion of fermentable food or diversion of nerve force may induce mucous colitis.

Dr. J. A. Baughman of Neoga, then read a paper on

A FEW CONSIDERATIONS ON THE SUBJECT OF CHOREA.

From a study of the literature of the subject he finds that females are more liable to the disease than males, two to one; that the negro race is largely exempt; that no age is exempt, but from five years to puberty is the most common; that the mental faculties are usually considerably impaired; that the temperature of the body is unchanged; that when there is an hereditary predisposition to the disease it is incurable. In the treatment all peripheral irritations must be removed; the condition of the blood is an important feature. He has found antipyrin in doses of from fifteen to sixty grains per day with sodium bicarbonate to give good results. Electricity is of little value. In rheumatic subjects the salicylates or oil of wintergreen should be combined with other remedies. Within the past year hypnotism has been quite successfully used in the treatment of chorea.

Dr. J. B. Maxwell, Mount Carmel, read a paper on "Cure of Epileptics" in which he made a strong plea for State institutions for the care of these unfortunates.

Dr. George W. Webster of Chicago, read a paper entitled
ALCOHOL; ITS PHYSIOLOGICAL ACTION.

He gave the following conclusions: Alcohol is not a stimulant in any dose or in any sense except in increasing the secretion of saliva and of gastric juice. If continuously used congestion and inflammation result and the digestive processes are much impaired. Large doses are always injurious and if given at all to improve digestion it should be given in small doses just before meals. Even in small doses its food value is utterly subordinate to its action on the nervous system. With alcohol and no food death takes place as soon or sooner than if no food be taken; large doses may produce instant death. In disease it has a narrow limit of usefulness: it causes a tendency to obesity, limits oxidation and allows a vast accumulation of waste material in the body and blood, lessens the power of resistance to disease and directly invites others.

Dr. Elbert Wing read a paper on

APPENDICITIS.

Dr. Wing gave the report of a case in which special points of interest were the early appearance and constant presence of the McBurney point and the extension of the area of tenderness upward and backward from the seat of inflammation; the rapid development of the gangrenous stage of inflammation. In the technique of operation in this disease he recommends the Trendelenburg position, *i. e.*, elevation of the hips, as having many advantages. When the appendix does not lie near the median line the oblique incision is better than the perpendicular one.

The following papers were also read and referred to the committee on publication:

"Burns and their Treatment," by Dr. C. W. Hall, Kewanee; "Perityphlitis," by Dr. F. C. Shaefer, Chicago; "The Deflected Septum and its Repair," by Dr. J. H. Coulter, Chicago; "The Treatment of Blennorrhoea Neonatorum," by Dr. Boerne Bettmann, Chicago; "What Benefits can Ear Patients derive from Nasal Treatment?" by Dr. Henry Gradle, Chicago; "Squint and its Treatment," by Dr. William H. Wilder, Chicago; "The Total Correction of Amblyopia," by Dr. W. F. Coleman, Chicago; "The Diagnosis and Treatment of Otitic Brain Abscess," by A. L. Adams, Jacksonville; "A Case of Erysipelas in an Infant Involving the Entire Body Excepting the Hands and Feet," by Dr. J. J. Alderson, Chicago; "The Superiority of Sterilized Cow's Milk as an Artificial Food for Infants," by Dr. Charles W. Earle, Chicago; "A Consideration of the Traumatic Neuroses So-called," by Dr. H. N. Moyer, Chicago; "Insanity in its Relationship to Life Insurance," by Dr. Frank P. Norbury, Jacksonville; "Consumption Primarily a Nervous Disease," by Dr. J. J. M. Angear, Chicago; "Oil of Cassia as an Antiseptic," by Dr. C. E. Black, Jacksonville; "The Lunacy Laws of Illinois," by Dr. Anne McFarland, Jacksonville.

The following officers were elected:

President, Dr. O. B. Will, Peoria; first vice-president, Dr. D. R. Brower, Chicago; second vice-president, Dr. Michael Rooney, Quincy; permanent secretary, Dr. John B. Hamilton, Chicago; assistant secretary, Dr. E. J. Brown, Decatur; treasurer, Dr. George N. Kreider, Springfield; judicial council, Drs. E. Ingals, Chicago; C. B. Johnson, Champaign; and W. J. Chenowith, Decatur.

After the introduction and adoption of resolutions thanking the officers for the able and efficient manner in which they had discharged their duties, and the press for reports of the proceedings, the Society then adjourned to meet in Decatur, on the third Tuesday in May, 1894.

DOMESTIC CORRESPONDENCE.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Dear Sir:—I did not intend to say more than to put myself on record in favor of what I honestly believed to be right for the good of the profession at large, and the future prosperity of the American Medical Association. Since my communication a number of letters have appeared, and some of such a nature as to require amendments to my letter. I make these amendments very freely for the sake of first named principles, and in response to an earnest appeal from that letter.

I stated in that letter, April 22, 1893, that "I saw nothing in the demand for revision save a down-grade movement on the part of a few in a single State." I am sorry that recent letters prove a few in more than a "single State." "who are dissatisfied and fail to give a single reasonable excuse for being so." As suggested by my honored friend, Solomon Solis-Cohen, it is very probable that *some* who would revise or dispense with the Code "are actuated by the highest motives," and are "pure-minded men." With this explanation my letter is as I would have it.

The arguments, if you could call such reasons logical, advanced so far by those who do not want a code, are in substance about as follows: We do not keep it (Code), therefore you should not have it. We want to advertise and meet irregulars, therefore you (little you) should meet *Us* (big us), and not call *us* "quacks;" but give *Us your* endorsement, etc., *ad infinitum*.

The Constitution and laws of the United States and every individual State in the Union no doubt have been violated.

If, according to these few, violating the Code of the American Medical Association is a lawful, just, reasonable and expedient reason for rejecting our present Code, or having no code at all, it follows, as night follows day, and bright reason, that we should also not have National or State constitutions or laws. We demand recognition as a profession by the national government, with one of our number in the cabinet of the president. We claim to be capable of legislating wisely, by dictation and in office, for this great country of ours. Let us first show our ability to legislate wisely for our National Society. If we can not do the one, I am sure we would fail to do the other. We do not want anarchy in this country of ours, so we as a nation propose to have and enforce obedience to a constitution and laws. Every law a penalty, our motto, like deed like penalty. As a member of the medical profession and the American Medical Association, etc., I appeal to every intelligent, honest man of this Association for law, order and an established Code of Ethics. We do not want anarchy in our profession any more than we do in this fair land of ours. Let us honor our profession by honoring ourselves. If any among us so lightly esteems himself as to consider *his profession a trade*, let him go among *his kind* and advertise his vile wares. If others among us would rather prostitute themselves and trade with *this set*, let them meet with *these irregulars*, "root" with *their kind*, wallow in the mire of filthy lucre; but by the *sacred freedom of American manhood*, let those who wish stay with *their kind*, and keep the Code in letter and spirit. Let every member of the American Medical Association, present or absent at the Milwaukee meeting, if he has paid his dues and at present is considered in good standing, vote by ballot yes or no in favor of *present Code, a revised code or no code*. The majority will decide the question as far as the Association is concerned. Then each individual will know where to find *his kind*. He may act intelligently; *remain or go with his kind*.

I am not criticising any person, making charges or insinuations, but exposing to your eyes what I believe to be a foul, malignant ulcer on the professional body. I make this statement for fear some will make so simple a mistake, and do as "Practitioner" did in a recent letter. I hereby give *all such* fair warning, if their corns are hurt that I did not know they had corns or were hurt until they whimpered and told everybody they were hit. "Practitioner" gives himself "dead away" by referring to *Aesop's Fables*. I see he wants me to read the story about "A fox without a tail." He has evidently lost his tail in a trap or somewhere else, and wants us to cut ours off so he will not be so lonesome. Well, I am done, and here is to the Code and the future prosperity of the American Medical Association, and its magnificent journal. Respectfully,

MYRIS J. CROUCH,
alias A KENTUCKY MEMBER.

Union, Ky.

BOOK REVIEWS.

A TEXT-BOOK OF THE THEORY AND PRACTICE OF MEDICINE BY AMERICAN TEACHERS. Edited by WILLIAM PEPPER, M.D., LL.D., Provost and Professor of the Theory and Practice of Medicine in the University of Pennsylvania. In two volumes—Illustrated. Philadelphia: W. B. Saunders, 1893.

Unlike most text-books this work is practically the production of the leading American teachers in this department of medicine. The reader will find chapters on hygiene by Dr. John S. Billings; ephemeral and typhoid and other fevers, by Dr. Wm. Pepper; scarlatina, measles, small-pox, vaccination, mumps, tetanus, whooping cough, actinomy-

cosis, anthrax, hydrophobia, trichinosis, glanders, and other infectious diseases by Dr. J. T. Whittaker; nervous and mental diseases by Horatio C. Wood; organic diseases of the brain, spinal cord and muscles by William Osler.

The well known character of the writings of these authors is a sufficient indication of the thoroughness of the manner in which they write of the diseases of which they treat. It need scarcely be said that the very latest knowledge of a given subject has here an able exponent, which makes the work a desirable one for every practitioner's library.

MANUAL OF CHEMISTRY. By W. SIMON, Ph.D., Professor of Chemistry and Toxicology in the College of Physicians and Surgeons, Baltimore, Md. Fourth edition. Thoroughly revised with forty-four illustrations, and seven colored plates presenting fifty-six chemical reactions. Philadelphia: Lea Brothers & Co: 1893.

This substantial work by Prof. Simon has meritoriously won its way to the position of text-book in many—perhaps we can safely say in most of the medical colleges of this country. This edition gives the student the benefit of all recent discoveries and advances made in the science of chemistry.

NECROLOGY.

William Lomax, M.D.

Dr. William Lomax, aged eighty died at 7:30 P.M., April 27, 1893, after an illness which had confined him to bed for three weeks. For years he has been afflicted with Bright's disease. This, complicated with pneumonia, hastened the end, which has been approaching, with increased feebleness. He leaves a wife, but no children.

Dr. William Lomax was one of the best known old-school surgeons in Indiana. In 1836 he entered the Ohio Medical College in Cincinnati. In 1847 and 1848 he attended lectures at the Indiana Medical College, afterwards entering the University of the City of New York, where he graduated in 1850. He practiced in Marion until 1861, when he began enlisting volunteers for the war, and was made surgeon of the regiment, his being the first surgeon's commission issued by Gov. Morton. He was always near the Twelfth Indiana Infantry throughout the war, his skill resulting in his being called to act as surgeon-in-chief of division and medical director of the Fifteenth Army Corps. His wife, nee Sarah Van de Vanter, went with him to help care for the wounded and sick, but fell victim to disease and died at Sharpesburg, Md., Dec. 24, 1861. After his return from the war he married Miss Maria Hendrix, of Wabash, Ind.

Dr. Lomax has been a member of the American Medical Association ever since its organization and attended nearly every one of its meetings, until the last few years when failing health interdicted the journey. He was one of the first to agitate the question of re-organizing the State Medical Society and establishing it on the basis where it rests to-day. He was elected president of the Indiana State Medical Society as early as 1856, and it was not until 1875 that he got the body composed entirely of the accredited delegates from county societies in good standing, and then had it incorporated. He is credited with having performed the "flap" amputation below the knee fifteen years before the earliest recorded operation of that description. He was a man who always devoted his spare time to his own higher education and did much to help others do the same. About a year and a half ago he bequeathed property near Marion, valued at about \$50,000 to the Medical College of Indiana. He also made other provisions for the college, the details of which have not been published, but which will bring his bequest up to about \$75,000. Dr. Lomax was a high degree member of the Order of Freemasons, having taken the highest degree in America.

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SATURDAY, JUNE 3, 1893.

THE TREATMENT OF MALIGNANT TUMORS BY
INOCULATIONS OF ERYSIPELAS.

From time to time cases have occurred under the observation of medical men in which an accidental attack of erysipelas has been followed by the permanent cure or temporary arrest of a sarcoma or carcinoma. BUSCH (*Berliner ke. Wochenschrift*, 1866) saw an accidental permanent cure by erysipelas of a multiple skin sarcoma of the face; two years later he produced erysipelas by putting a patient with a large inoperable sarcoma of the neck in bed in the immediate vicinity of a case of erysipelas, and marked temporary improvement followed. FEHLEISEN, the discoverer of the streptococcus of erysipelas, inoculated a number of cases of carcinoma and sarcoma by means of scarification and saw temporary improvement in them all.

Recently CALEY (*American Journal of the Medical Sciences*, May, 1893) reports ten original cases of malignant tumors treated by repeated inoculations with erysipelas. From a study of the literature of this subject it was found that there are recorded thirty-eight instances of malignant tumors in which an erysipelas had occurred, either by accident or intent (this number does not include CALEY's cases). In thirty-three cases the erysipelas was accidental and in fifteen it was the result of inoculation; seventeen cases were sarcoma, seventeen were carcinoma, four were either sarcoma or carcinoma. Of the seventeen cases of carcinoma, three were permanently cured; in addition one case of probable carcinoma was well five years after the attack of erysipelas; ten showed such improvement that it must be considered that life was prolonged; one case of inoculation erysipelas died on the fourth day. Of the seventeen cases of sarcoma seven were free from recurrence from one to seven years after the attack of erysipelas. Ten cases showed quite marked improvement; one patient died as the result of an accidental erysipelas.

Of the seven cases of sarcoma in which permanent cure followed the attack of erysipelas, one was a large round celled tumor of the face, mouth and orbit in a child ten years old, one a melanotic sarcoma of the breast, one a multiple sarcoma of the face, one a lympho-sarcoma of the neck, one a recurring sarcoma in the stump of a thigh amputated for sarcoma in the lower end of the femur, one a round celled sarcoma of the neck, one a recurrent sarcoma of the neck and tonsil. In almost all these cases the tumor mass disappeared entirely with quite marked rapidity. Of the cases of artificial erysipelas there were seven carcinomas and one cure, eight sarcomas and two cures. In almost all these instances the tumor was considered inoperable either from its original size or situation, or because of the repeated recidivation after numerous operations.

The very important, and to many perhaps, unexpected deduction to be made from this summary is this: that there exists actual and indisputed evidence of the curative effect of erysipelas upon malignant tumors; in place of a vague general impression that erysipelas may produce some modification upon the usual course of such tumors we know positively that in a number of authentic cases it has had a permanent curative action.

In the summary of the analysis of recorded cases in the literature CALEY purposely excluded eight cases of his own of malignant tumors treated by repeated inoculations with erysipelas cultures; in none of these cases did an actual attack of erysipelas result and yet the inoculations appear to have been followed by marked improvement in the tumors, and this would indicate that there exists in the cultures some substance which is antagonistic to the tumor growth; but this substance is not as active, perhaps not as diffused or abundant as when an actual erysipelas develops and the microbes multiply in the tissues. That the erysipelas does not act in somewhat the same fashion as a caustic is readily shown by the clinical fact that malignant tumors have disappeared after an attack of erysipelas in a different part of the body, as well as by the recent experiments of SROXCK (*Annales of l'Institut Pasteur*, October, 1892) which consisted of subcutaneous inspection, at a point remote from the tumor, of the sterilized toxic products of the streptococcus erysipelatosus: improvement and even complete disappearance of the tumors followed, although recurrence usually took place; the effects were much more marked in sarcoma than in carcinoma. ROGER (*Revue de méd.*, December, 1892) in his researches used a larger dose of the isolated toxic products of the erysipelas germ than SROXCK and obtained more startling effects. In connection with this it is interesting to note that the effect of erysipelas upon cutaneous tuberculosis and syphilitic lesions is quite similar to that exerted upon malignant tumors.

There are a number of very fascinating problems to be worked out in regard to the action of erysipelas upon malignant tumors. In the first place what are the histological changes that take place in the malignant growth which is disappearing as a consequence of an actual erysipelas or as a result of therapeutic injections with the toxic products referred to? How and in what manner does the erysipelas toxine exert its detrimental effect upon the tumor whose natural tendency is to spread and continue growing? In the present unsettled condition of affairs as regards the parasitic origin of malignant tumors it can not with justice be concluded that such changes are wrought in the blood serum by the toxic substance produced by the erysipelas streptococcus as to destroy "the parasite of cancer," although that sounds extremely plain and reasonable.

As it has been quite conclusively demonstrated that the curative effect of erysipelas is systemic and most likely due to the toxic products produced by its specific microbe, and as these products can be isolated and infected without causing erysipelas, then it would seem to be quite reasonable to expect that future experimentation will soon quite accurately define the limitations of this method of treatment of malignant tumors as well as solve such problems as those indicated.

WIRING OF FRACTURED PATELLA.

DR. F. S. DENNIS of New York City, states that he has done this operation fifty times, and has obtained bony union in every such instance. He has been careful to select his cases, otherwise he would not be able to report that he has had no reason to regret the operative measures pursued. Not every person will withstand the risks by which the limb and sometimes the life may be lost—risks that are not warranted by the operative advantages. The surgeon selects only those who are comparatively young, with a healthy "surgical tripod"—heart, lungs and kidneys—and does the operation under a strict antiseptis. A patella thus treated and resulting favorably may be expected to be stronger than it was before the accident; for in the instances where re-fracture has occurred, the break has never been at the point of union; the point of union becomes the strongest part of the bone. Full anæsthesia by ether is secured before the operation is begun, and is not remitted until the dressing has been completed; a posterior splint, with a wire cuirass and bandage to equalize pressure, is used to keep the alignment of the limb. The superficial wounds are dressed with iodoform, bichloride gauze and absorbent cotton. A drain is established from the deeper parts of the wound by a small rubber tube that has its exit at the posterior part of knee, through an incision made for that purpose with a small scalpel. The limb should

be kept in an elevated posture for a few hours. In two to four weeks the patient may be allowed to try the leg in walking.

HYSTERICAL APHONIA, WITH SINGING VOICE UNAFFECTED.

DR. E. H. GRIFFIN reports in the *New York Medical Journal* an unusual phase of hysterical aphonia. The patient a female, aged eighteen years, has been more or less aphonic for a year. Her conversation has been, as a rule, in a low, husky whisper, not sufficiently enounced to be heard across an ordinary room. During singing, however, her voice is clear and resonant, and the words of any song are distinctly understood; the volume of voice is equal to the filling of a large apartment. The same words attempted in the speaking voice result in a low whisper.

An examination of the patient's larynx showed the vocal chords to be in color normal, and in their position closely approximated—a condition not ordinarily found in these hysterically voiceless persons. The patient's menstrual and uterine conditions were too nearly normal to be incriminated as the cause of the vocal affection.

Treatment by tonics, electricity and a course of painstaking vocal discipline—partially, if not mainly, addressed to the sufferer's *morale*—gradually brought about a better vocal state. At present, and for some weeks past, there has been no aphonia.

This form of aphonia, commonly called hysterical, chiefly affects women, but is not unknown in men, according to the author's experience. In one of DR. GRIFFIN's patients, a young man, addicted to excessive coffee-drinking, a loss of voice existed for some months; the vocal chords showed an imperfect apposition, but were otherwise normal. The young man was irritably nervous and had bad dreams, accounted for by the fact that he was in the habit of taking seven or eight cups of coffee daily. The aphonia was broken up by forbidding these potations, by a little bromide and a great deal of moral suasion. The chronic huskiness, in such cases, tend to mislead the practitioner into a belief that some structural lesion exists, but this error is removed at once by an examination of the larynx.

The prognosis may be considered favorable of a prompt recourse to treatment when the singing voice continues normal.

THE PAN AMERICAN MEDICAL CONGRESS.

The Executive Committee has issued a circular letter to the Auxiliary Committee a copy of which will be found on another page.

It is highly gratifying to note that President Cleveland has manifested that cordial interest which is shown, not only by his consent to open the Con-

gress in person but to give a reception at the White House.

The success of this movement has been made possible only by the cordial coöperation of the general profession of all the Americas. The present indications are that the attendance will be very large. A number of invitations have been extended to distinguished savants of Europe to become the guests of the Congress. This will be the one conspicuous opportunity for the medical profession of America to display its hospitality. To enable the committee to carry out its purposes in this regard physicians should register at once.

THE SURGEON-GENERAL OF THE UNITED STATES ARMY.

The President has appointed Surgeon GEORGE M. STERNBERG, surgeon-general of the army, *vice* CHARLES SUTHERLAND, retired. This appointment is in accord with the policy adopted in the appointment of the surgeon-in-chief of the navy.

SURGEON STERNBERG skips over the heads of ten of his seniors in rank. The surgeon-general of the navy skips over the heads of twenty-six seniors, instead of fourteen as stated in our last issue. There is no officer in the United States army for whom we have a more profound respect than for SURGEON STERNBERG. His contributions to the sum of medical knowledge is perhaps greater than that of any other officer in the army, but for all that there is ample evidence to show that his late seniors in the service have been valuable servants of the government, and we know of no reason for their being turned down in rank on this occasion.

STRICTURE OF THE NASAL DUCT.

DR. SAMUEL THEOBALD of Baltimore, has for many years advocated the use of large probes in the treatment of lachrymal strictures. He has recently taken occasion to report upon his experience, in a paper read before the Clinical Society of Maryland, and which is published in a late issue of the *Maryland Medical Journal*. About fifteen years ago, he called the attention of the profession to the small successes obtained from small probes. Drs. WILLIAMS and NOYES spoke in the same tenor about the same time. To-day the profession employ larger sized probes than formerly, but smaller than those of DR. THEOBALD. He specifies two text books, published during the year 1892, both of which lay no emphasis on large probes, and both speak of a poor prognosis.

In the case of one of these treatises, the following is the language used: "Even in the most favorable cases treatment lasts for many weeks, and a recurrence is the rule." On the other hand, by the methods of DR. THEOBALD, the outlook is by no means so dark;

and in fact, he says, there is no class of cases which he approaches "with more confidence of a successful result." Not a few of his cases have been previously and unsuccessfully treated by small probes, and these as well as others, if they continue under his charge until he gives them a discharge as cured, will have no recurrence. Nearly all the relapses that he sees are in patients who for one cause or another do not remain under treatment for the desired period of time. DR. THEOBALD begins the probing, by preference, with a No. 5 or 6, avoiding small numbers wherever possible, for it is so easy with them to force a false passage. Unless the treatment is to be a hurried one, the probes are not passed oftener than every other day. He increases the size at each sitting, but occasionally going back a number if the stricture is very resisting.

In two-thirds of his cases, inclusive of those in children, he has advanced as high as No. 16. Having reached the highest number intended to be used, he then increases the interval between the treatments. The only objection or ground of complaint against this form of liberal probing is that the duct remains too pervious, and air will pass upwards from the nose when that organ is "blown;" but this he regards as an inconvenience of no great moment. The additional treatment by collyria is always prescribed thrice daily, using a solution of the bichloride or of alum in the larger proportion of cases; if the former drug is used, the strength of the solution is as one to 12,000. When carious bone or fistula exists, he does not attack them by any special treatment, for he has found that they will "soon take care of themselves" if the passage remains pervious. It is sometimes desirable to train the patients to probe themselves with the larger probes. Stricture-tomy has never appealed to DR. THEOBALD as an essential to success in these cases, and he has seldom had reason to destroy the lachrymal sac. The complicated cases require a longer time in their management, but the outcome has generally been satisfactory.

MR. GLADSTONE ON THE PHYSICIAN'S RECOMPENSE.—The recent public addresses of England's greatest living orator have excited surprise at the virility and endurance of a man who has entered on his eighty-fifth year. The *Lancet* has noticed that Mr. Gladstone is apparently as calm after one of his great two hour speeches, as if he had accomplished some ordinary everyday duty, that he takes his dinner just as usual after it, and has a night's sleep as if nothing had happened. His voice has not all of its early vigor, but it is fully at the orator's command and can ring out roundly when the key of eloquence and deep feeling is touched. It is worthy of note that this truly great man maintains down to this late phase

of his experience his truly high estimate of the medical profession. In one of his recent addresses he went out of his way, almost, to indicate this opinion; he was speaking of bimetallism, changes of values and the like, and he said, "No one is aware of any increase of the fees in the medical profession, and I am bound to say that there are none more nobly earned in the world."

The date of the Pan-American Medical Congress is near at hand. The prospects for a brilliantly successful celebration of this important medical event are most encouraging.

The Congress will be opened by the President of the United States on September 5, and an official reception at the White House will be given on a date not yet determined.

The invitation extended by the National Government to the Pan-American countries has been uniformly accepted, and many highly distinguished delegates will attend officially. The presence of a number of distinguished European guests is assured. The scientific papers secured for the various sections are numerous and important, so that the proceedings of the Congress will certainly be highly interesting and valuable.

It may be safely asserted that the Volumes of Transactions will alone far exceed in value the amount of the registration fee. The committee of arrangements will provide ample accommodation for all portions of the work of the Congress; and the entertainments proposed are unusually attractive. It is absolutely indispensable that an estimate should be now formed of the number likely to attend. It is confidently hoped that a very large representation of our profession will be present on an occasion of such practical and historic interest.

Registration fees forwarded to the treasurer, Dr. A. M. Owen, 507 Upper First Street, Evansville, Indiana, will promptly return membership tickets therefor.

The treasurer, Dr. Owen, will have a registration desk at Association Hall, Milwaukee, during the entire meeting of the American Medical Association.

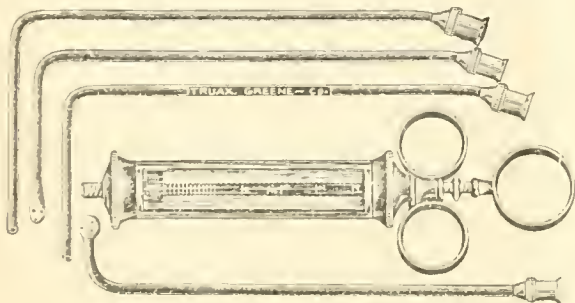
By the Executive Committee,
Approved:

CHARLES A. L. REED, *Secretary-General*.

WILLIAM PEPPER, *President*.

NEW INSTRUMENT.

The accompanying cut represents a set of tubes which I have used for some time past for the purpose of making post nasal and intra-laryngeal injections. They are made of pure silver and can be bent to a limited extent if desired.



I found that hard rubber is not suitable owing to its brittleness during cold weather.

The post nasal tube terminates in a slight bulb with several

openings after the fashion of a spray. One of the laryngeal tubes is similarly made, while the other is of equal caliber throughout. The fourth tube being also of equal caliber throughout, is longer to enable one to pass its end below the level of the vocal chords and make the injection into the trachea.

The tubes are made to fit the ordinary combined hypodermic and aspirating syringe sold by instrument makers. On the piston rod of the syringe there is a small milled nut by means of which the quantity of fluid to be injected can be gauged to a nicety. The rings should revolve on the rod so that the syringe can be readily grasped and the points of the applicator turned in the desired direction without inconvenience.

This set was made for me by Messrs. Truax, Green & Co., of this city. These applicators were suggested to me after reading the paper of Dr. J. W. Downie published in the *British Medical Journal* for April 18, 1891.

MOREAU R. BROWN.

34 Washington Street, Chicago.

• [Received too late to appear in "Original" department.]

THE PRESENT STATUS OF THE MEDICAL PROFESSION.

Read before the Kentucky State Medical Society at Frankfort, May 12, 1893.

BY DUDLEY S. REYNOLDS, A.M., M.D.

Professor of Ophthalmology, Otology, and Medical Jurisprudence in the Hospital College of Medicine, Medical Department of the Central University of Kentucky.

There are more than 105,000 names of practitioners of medicine in Polk's Medical Register of the United States for 1893, including all the pathists.

Prior to 1876 the medical colleges of the United States had reached no agreement as to what should constitute a proper course of study, excepting the adoption of seven branches, including anatomy, physiology, materia medica and therapeutics, chemistry, principles and practice of medicine, principles and practice of surgery, obstetrics and diseases of women.

Some of the schools held sessions of three months, a larger number four months, some others five months, and three, nine months. The schools whose terms embraced a period of nine months required but a single course, whilst all the others required two courses, excepting in the case of persons engaged in pharmacy, or those who had been engaged in the practice of medicine for a certain period of time.

A convention was called to meet at Philadelphia in 1876 for the purpose of organizing an Association of Medical Colleges. After free discussion it was determined to prepare a plan of organization, and the convention adjourned to meet at Chicago in June, 1877.

Prof. Edward Curtis of New York, as chairman of the committee on plan of organization, reported to the meeting in Chicago a series of articles of confederation, which were adopted; and although a bare majority of the regular medical colleges in the United States had representatives at that meeting, all the colleges, including the pathies, soon adopted the principal requirements of the College Association, and in 1880 there were no medical schools in the country pretending to graduate students in less than two courses of five months each; whilst the colleges of every class required the dissection of the human body as a part of the course in anatomy.

With the growth of experimental research in the various fields of science, the medical colleges of the United States have gradually incorporated laboratory demonstration, additional subjects of study, increase in length of term, and increase in the number of courses of collegiate training.

A convention of medical teachers, assembled at Nashville, Tenn., May, 1890, agreed upon a new organization of the colleges. It was determined to exact three courses of six months each, as a minimum requirement of collegiate study. The Association of American Medical Colleges, which that convention determined to organize, was perfected at Washington City, May, 1891.

Of the 137 lawfully established colleges in the United States and Canada, twenty-three now require four courses of instruction of not less than six months each; twenty-three require four or more years of study and three courses of not less than six months each; fifty-five require three or more years of study, and three terms of not less than six months each. Of the remaining thirty-six, all but seven have announced a requirement of three courses of instruction before admitting applicants to final examination.

Nearly every medical college in the United States now requires clinical instruction, laboratory instruction in chemistry, toxicology, urinalysis, normal and pathological histology, bacteriology, pathology and hygiene.

More than 90 per cent. of the regular medical colleges in the United States now require preliminary educational training, equal to, or better than that required in high schools of the first class. It may now be understood just how great the advancement in medical education has been in recent years.

Medical schools in the United States are not under governmental control, although the regular medical profession does not recognize schools which are not lawfully chartered by the State and authorized to confer degrees after a prescribed course of study. The medical colleges are ministerial officers of the State, authorized to confer degrees of rank and distinction in learning. The degree of Doctor of Medicine is the only medical degree in the list of professional titles recognized by the laws of the several States.

To preserve the common brotherhood, organization was found necessary, and for the better maintenance of the honor and dignity of the profession of medicine medical societies have been organized, somewhat after the general plan of organizing the several governments of the United States. The American Medical Association being made up of representative delegates from such State, county, and other local organizations of the regular medical profession, as conform to a definite plan or basis of organization.

This congress of delegates assembles annually and divides itself into sections for the consideration of special subjects of general professional interest.

In Kentucky we have long been organized so as to secure representation in the National body, but we are not sufficiently well organized; we need more county societies, and when we make these auxiliary to the State society, making membership in the county society a prerequisite to membership in the State society, we shall be able to advance greatly in the scale of dignity and importance, and thus contribute largely to our advancement in learning.

Every ten members of the regular medical profession in Kentucky are entitled to one representative in each annual meeting of the American Medical Association; this would give us a membership in the National body of more than three hundred delegates, and in a few years, fully three thousand permanent members; that would mean to Kentucky a very great degree of advancement in science and letters, and a very exalted position for the medical profession.

The basis of uniting the profession has always been ethical, and this must remain the principal ground for any general organization of practitioners in all the various fields of specialism. It would seriously impair the character and standing of any medical school to undertake to provide separate branches, or courses of study for the education of students in limited departments of medicine. Less than enough to make up a general medical education in all its details could never be accepted as the lawful qualification for the degree of doctor of medicine.

Specialism must, therefore, always arise in the regular ranks of the profession, and the schools must always provide expert specialists as teachers in every legitimate branch of medical knowledge, just as the colleges teach letters, the sciences, and the liberal arts.

A medical society should be constituted of such persons as have been properly educated in the profession; and, gentlemen engaged in any special field of practice may always derive advantage from contact with others engaged even in the most widely separated departments. The interdependence of each part of the animal economy upon the state of the general nutrition, forbids exclusive specialism in practice.

It is seriously to be doubted if exclusive organizations of the profession following particular branches of practice result beneficially to that large class denominated, "general practitioners." This class being largely in the majority, and its members being the only legitimate source for recruits in any field of specialism, it would seem absolutely necessary, for the advancement of medical education, that the societies should embrace every class of legitimate practitioners.

SELECTIONS.

THE TREATMENT OF BOILS BY BORIC ACID.—*L'Union Médicale* quotes Alison as having obtained good results in the case of general furunculosis by the administration for eight or ten days of from ten to fifteen grains of boric acid a day, divided into two doses. At the same time, four or five times a day, the inflamed areas were washed with a hot solution of boric acid, in the strength of four per cent. Between the applications of this lotion compresses were applied to the diseased parts, which had been wet with the same solution of boric acid. In this way he claimed to have been able to relieve the boils which had already formed, and to do much towards preventing other outbreaks. By this means he thinks it possible to avoid a surgical intervention.—*Thérapeutique Gazette*.

THE TRANSFUSION OF NERVE-SUBSTANCE IN THE TREATMENT OF THE INSANE.—In an able article, A. Callevé (*Gazette Médicale de Paris*, August 27, 1892) discusses the above subject, formulating the following conclusions: 1. The transfusion

of nerve-substance (I employ the method of Arsonval to sterilize the liquid) is well borne by deranged persons, as well as by tuberculous subjects, exercising an almost immediate stimulating action on the nutritive functions. 2. The first sign of this stimulation is an increase of the appetite, to such an extent that some patients appear unable to satiate their hunger. This action may be of importance in the treatment of mental weakness, to combat, in certain cases, sitophobia; and I have seen it do good in many patients who systematically refused nourishment. 3. The reconstituent effects are rapid, muscular debility disappears, corpulence is developed, and all the organic functions become regular. 4. The psychopathic state, in curable cases, has been often ameliorated for hours after the injection, but a permanent improvement has not been obtained. All in all, I do not consider this conclusion as a definite one, since the majority of the cases treated have not exhibited a favorable prognosis from the beginning. It is the general rule, however, that together with the improvement of nutrition, there occurs a similar modification in the mental state.—*Therapeutic Gazette*.

MISCELLANY.

THE RUSH MONUMENT.—Members of the medical profession who have not yet paid their subscriptions to the monument to Dr. Benjamin Rush, are again reminded that they can do so, and it is most earnestly hoped that they will do so without further delay, at the approaching meeting of the American Medical Association at Milwaukee. The secretary of the committee, Professor George H. Rohé, M.D., superintendent of the State Hospital for the Insane at Cartersville, Md., will be in attendance and prepared to receive contributions, or checks may be sent directly to his address as above.

COLUMBIA COLLEGE GENERAL CATALOGUE.—At a meeting of the trustees of Columbia College, held on the 6th of March, the publication of a new general catalogue of officers and alumni was authorized, and a committee, consisting of J. Howard Van Amringe and Mr. John B. Pine, clerk of the board, was appointed to prepare the same. The new edition, which is to be issued in 1894, will be the eleventh since the foundation of the college, and will be also the most elaborate and comprehensive. It will at least be possible for every graduate of Columbia who reads this to forward to the committee his own name, class, and present address, with such other facts regarding himself as he deems material. Alumni who may be so far interested in the progress of this important undertaking as to go beyond the data concerning themselves will confer a special obligation upon the committee if they will inform them (1) of any living graduate known to be now residing or practicing his profession outside of the United States, with his address and class, when known; (2) of the death of any graduate occurring within the past five or six years, date and place, when known; (3) of recent changes of address among alumni; (4) of anything else suggested by the foregoing description of the committee's intentions. All correspondence may be addressed to the Committee on the General Catalogue, Columbia College, New York City.

At the meeting of the Medical Association of the State of Missouri, Sedalia, May 16, 17, 18 the following officers were elected: President, Dr. W. H. Evans, Sedalia; Secretary, Frank R. Fry, St. Louis; Corresponding Secretary, C. F. Wainright, Kansas City; Treasurer, C. A. Thompson, Jefferson City.

ASSOCIATION OF ACTING ASSISTANT SURGEONS, U. S. ARMY.—A meeting of the Association of Acting Assistant Surgeons of the U. S. Army was held in Boston, May 25. The following officers were elected: President, Dr. D. S. Lamb, Washington, D. C.; vice-presidents, Dr. Ord, California, Dr. Comfort, Wisconsin, Dr. Pratt, Chelsea, Mass.; recorder, Dr. W. Thornton Parker, Groveland, Mass.; registrar, Dr. McLain, Washington, D. C.; council, Drs. Deeble, Porter,

Hoffman, Yumbes, Gillicuddy, Benedict, Dixon and Patee. A committee was appointed to prepare suitable resolutions on the death of the late president of the Association, Dr. Reeves Jackson of Chicago, also of Drs. Huse of Massachusetts, and Sargent of Pennsylvania, deceased members. It was voted to admit as associate members, former A. A. Surgeons of the U. S. Navy and of the Marine Hospital Service, surgeons of the U. S. Indian Service, medical officers of the U. S. Army and of the militia and physicians in the employ of the U. S. Government.

The office of treasurer was merged with that of recorder. A suitable constitution has been accepted and provision made for the organization of local societies. The outlook for the future success of the society was never better. The past and present A. A. Surgeons before, during or since the war are cordially invited to become members.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from May 20, 1893, to May 26, 1893.

Capt. Freeman V. Walker, Asst. Surgeon, leave of absence granted on surgeon's certificate of disability, for treatment in the Army and Navy General Hospital, is extended to June 30, 1893.

First Lieut. James Kennedy, Asst. Surgeon U. S. A. (recently appointed), will proceed from Troy, Abbeville Co., S. C., and report in person to the commanding officer, Ft. Riley, Kan., for duty at that post.

Major John O. Skinner, Surgeon, will report in person to Col. Henry W. Closson, Fourth Artillery, president of the Army retiring board at Washington Bks., D. C., when required by the board for examination by it. By direction of the president.

First Lieut. Alexander N. Stark, Asst. Surgeon, will proceed from Norfolk, Va., and report to the commanding officer, Ft. Monroe, Va., for duty at that post.

First Lieut. John S. Kulp, Asst. Surgeon, will proceed from Wilkesbarre, Pa., and report to the commanding officer, Columbus Bks., O., for duty at that post.

First Lieut. James D. Glennan, Asst. Surgeon U. S. A., is relieved from further duty in the Dept. of Texas, and ordered to join his proper station, Ft. Sill, Oklahoma Ter.

First Lieut. Edward L. Munson, Asst. Surgeon, will proceed from New Haven, Conn., and report to the commanding officer, Jefferson Bks., Mo., for duty at that post.

First Lieut. Charles E. B. Flagg, Asst. Surgeon, will proceed from Indianapolis, Ind., and report to the commanding officer, Presidio of San Francisco, Cal., for duty at that post.

First Lieut. Charles Lynch, Asst. Surgeon, will proceed from Syracuse, N. Y., and report to the commanding officer, Ft. Omaha, Neb., for duty at that post.

First Lieut. Guy C. M. Godfrey, Asst. Surgeon U. S. A., ordered to proceed to Ft. D. A. Russell, Wyo., and report in person to the commanding officer of that post for duty.

OFFICIAL LIST OF CHANGES in the Medical Corps of the U. S. Navy, for the Week Ending May 27, 1893.

Medical Inspector J. M. Flint, ordered to the U. S. S. "Baltimore."

Medical Inspector G. W. Cooke, detached from U. S. S. "Baltimore," and three months' leave.

Surgeon C. G. Herndon, to duty in the Bureau of Medicine and Surgery.

Surgeon W. A. McClurg, from duty in Bureau of Medicine and Surgery, and wait orders.

P. A. Surgeon G. T. Smith, detached from New York Hospital, and to U. S. S. "Baltimore."

P. A. Surgeon S. S. White, detached from U. S. S. "Baltimore," and two months' leave.

P. A. Surgeon F. H. Bryant, detached from Philadelphia Hospital, and to U. S. S. "Baltimore."

Asst. Surgeon M. R. Pigott, detached from U. S. S. "Baltimore," and to U. S. S. "Kearsarge."

Asst. Surgeon A. R. Alfred, detached from U. S. S. "Kearsarge," and one month's leave.

Asst. Surgeon B. R. Ward, from U. S. S. "Richmond," and to U. S. S. "Monongahela."

P. A. Surgeon Oliver Diehl, ordered to Naval Hospital, Philadelphia, Pa.

P. A. Surgeon E. S. Bogert, from Laboratory, New York, and to "U. S. S. "Philadelphia."

Asst. Surgeon Robert Boyd, detached from U. S. S. "Philadelphia," and to U. S. S. "Richmond."

The Journal of the American Medical Association

VOL. XX.

CHICAGO, JUNE 10, 1893.

No. 23.

ADDRESSES.

PRESIDENT'S ADDRESS.

Delivered before the American Medical Association at the Forty-fourth Annual Meeting, held at Milwaukee, June 6, 1893.

BY HUNTER MCGUIRE, M.D.
RICHMOND, VA.

Gentlemen of the American Medical Association, Ladies and Gentlemen:—In behalf of the officers of this Society, I tender each and every one of you a very cordial welcome.

A cursory view of the circumstances which serve to emphasize the responsibilities attaching to this, our forty-fourth session, will not seem inappropriate.

Some fifty years ago, one of the great political prophets of our country, Henry Clay, son and grandson of Virginia and citizen of America, was crossing the Alleghanies with a friend on his way to his western home. Having reached a lofty elevation they turned for a moment to view the beautiful valley of Virginia—"The gardens of Gul in their bloom." Mr. Clay stood in silence, with the attitude of one inspired. His friend asked the meaning of it. He said, "I am listening to the tramp of the millions who are coming to fill the valleys and the prairies of this western world." The millions have come, and yet other millions are crowding upon their footsteps.

In reviewing the achievements of the past from the position we occupy, in this quadri-centennial year, and in contemplating the present, bright with the promise of future progress, we are filled with admiration for the character of our people and with just pride in the ever advancing prosperity and influence of our country.

There is stirring in our hearts a joyful consciousness that patriotism has a wider, truer, and yet more sacred meaning than at any period of our history.

The rapid development and crowding events of American life expand a year into a decade, a decade into a century; a century has become a thousand years, and the dignity of age is already impressed upon our institutions.

The energy of man has joined hands with nature so that in physical and intellectual development, as well as in extent, this country does indeed constitute one of the grand political divisions of the earth. Is it not the grandest? Does not the White Squadron lead the port column by right as well as by courtesy, as representing the most powerful as well as the most progressive nation in the world?

This amazing result of two hundred years of organized life is more wonderful as being self evolved. The noble ambition of this people has been to demonstrate the power of man to conduct his private affairs unaided and uncontrolled, and to maintain and advance the public interests by a

judicious self control and a conscientious regard for representative responsibility.

The latest and most surprising developments, our most gigantic strides, have been made not merely—perhaps not chiefly—through political, but through professional and economic organizations, directed and made efficient by representative bodies. The political economist, better than the doctor, can tell to what extent the responsibility for the next step in the advance of this mighty people has passed from the government itself, to these organizations and their representatives.

Whatever the share of each or all, the members of the American Medical Association, representing 100,000 doctors with all the intelligence, professional cultivation, trained skill and experience, and high personal character which they should possess—dealing with matters affecting the mental and physical energies of this entire generation of Americans and the next—can not but contemplate with gravest concern the important duties, the weighty responsibilities resting upon them.

Gentlemen, we must keep touch and time with all organizations of whatever character that have combined to present to the world the grand picture to which I have alluded. As patriotic citizens, we owe it to our country, as well as to the Association we represent, earnestly to strive to evolve through hard work, thorough observation, and knowledge of the needs and demands of all sections of the country, the things that are necessary not only for the preservation of health, but also for the highest conditions of physical and mental development.

There is no organization in this country so well equipped as ours for the accomplishment of the work we have undertaken. We more thoroughly represent medical opinion than any other body of a kindred character, the delegates composing this Association being drawn principally from other organized medical societies, coming not only from the larger but also from the smaller medical bodies; representing all sections of the country from Maine to Texas, from California to Virginia; when all these are gathered together in our annual sessions, our rolls may fairly be supposed to display the names of the most learned and distinguished of the medical men throughout the land.

You assemble, I do not doubt, filled with enthusiasm and a determination to exercise your best talents in furthering the aims and objects of this Society.

Speaking in the general:—Our prime object is to study the origin of disease; the immediate occasion of its outbreak, with the means of preventing it; and the best means of loosing its malignant hold, if once fastened upon the community or the individual. Secondly, and yet with a due appreciation not only of its value but of its necessity as a means to

the chief end, we labor to secure for this organization and for all allied with it, the greatest possible efficiency in the performance of the practical work entrusted to us.

The pagan superstition that disease expressed the anger of the gods of Olympus has disappeared from the human mind. The theories entertained and transmitted by the pseudo-science of the Middle Ages are no longer accepted as explaining its presence in our bodies. The Great Physician himself declared that the eighteen upon whom the tower in Siloam fell were not necessarily sinners above all the Galileans; that from congenital blindness in a son we are not to infer, as a matter of course, the wickedness of his parents. While therefore disease does as a Nemesis dog the footsteps of folly and crime—the retributive intervention of the Great First Cause is not a sufficient solution to the problem.

The laws of nature, systematized and arranged upon lines that will meet all demands essential to the preservation and maintenance of the universe, when violated are also sufficient for its destruction. These natural laws of the Creator touch all and several of His creatures. Therefore we look to the material conditions surrounding us, coupled with the proneness of all animated nature to dissolution and decay, for the real cause of death in the human family. While human life has been progressively prolonged during the past century, through a better appreciation and enforcement of hygienic requirements—by legal and police compulsion under the stronger governments, and in those of liberal form by an enlightened public opinion demanding special legislation in regard to the same—there remains much to be accomplished before even relative perfection can be reached. In the United States I believe we are on the threshold of great improvements in this direction. To secure them demands united action. It belongs to us of the medical profession by systematic, thorough and intelligent observation to inform ourselves of the minutæ essential to a thorough knowledge of the origin of the maladies common to the country, as well as those which are introduced from without. That being done, our united forces must be brought to bear to secure and put in active operation such measures as will effectually stamp out the one group and exclude the other.

In order that every obstacle may be removed and every agency brought to bear that can contribute to success, the medical man must gird himself for a stern battle with ignorance and prejudice, with misdirected intelligence and jealous conceptions of right. Our battle is first with the people and then with their representatives. The average citizen supposes that there is some subtle and selfish design on the part of the physician, especially on the part of associated physicians, to deprive him of some portion of the personal privileges he now enjoys. The American believes that his house is his castle, and even as he worships his household gods, so does he worship magna charta, habeas corpus, trial by jury and representative government. The mental state thus engendered is one of morbid sensitiveness, and develops a temper that blindly strikes at all comers, and not least venomously at the investigator who would inquire into the condition of the premises where disease originates. Inquiry must be pushed in spite of all obstacles. There is no longer a question as to the absolute necessity for properly policing our cities,

towns, villages and private houses. Healthful water supply and drainage, the right location of water closets and sinks and their disinfection, with the ventilation of all inhabited buildings, are now admitted to be essential to the maintenance of a high standard of health in every community. No physician is fairly discharging his duty who fails to seek information on all these subjects and to take advantage of the knowledge offered him; and he is criminally negligent if he fails to act upon these fundamental principles when the occasion arises.

Tact, discretion and painstaking instruction are often essential to convince parties interested of the necessity for special legislation in order to protect the health of the general public. Politicians are as a rule timid, apprehensive and eminently conservative where innovations against custom and habit are involved, or where popular objections are likely to be encountered. They can be made to move only through pressure brought to bear by a united public sentiment. It should be our endeavor to educate the masses up to the requirements in this direction. This we can best do by showing them the dangers which daily and hourly surround them from such diseases as are endemic and those that are of an epidemic and contagious nature. Through the politicians, acted upon by and coöperating with an intelligent public sentiment, State and local boards of health must everywhere be established. Their care will be to put in action the great *principle of prevention* now so much better understood. Taking advantage of the operations of boards of health in Germany, and especially in Great Britain, we have without conjoint action accomplished much in certain limited sections of the more densely populated parts of the United States in preventing the outbreak of disease, as well as in curtailing its spread, and absolutely eradicating certain affections which threatened to become widespread and devastating.

Much is to be learned in connection with the endemic diseases of the various sections of our country. The malarious diseases prevalent among us have been extensively studied. Their immediate origin has not been definitely determined, but the conditions of heat, moisture and vegetable decomposition are well understood as most potent in their production. It is a law long since ascertained on the continent of Europe, in Great Britain and in America, that wherever the trend of the land admits of the drainage of collections of fresh or brackish water, these maladies can be brought under control; in fact, can be permanently driven from the country. Yet a complex problem remains for us, viz: how to effect these salutary results in the basin of the Mississippi, with its sluggish streams and torpid bayous, with the marsh lands of the sea coast in general and the vast swamps in the interior. Whilst this is a problem to be solved in the main by sanitary engineers, yet the physicians of the country must come to their aid by contributing their knowledge upon the subject, and inciting the inhabitants of the States to activity in order to provide through legislation the means for carrying out the measures that may be recommended.

Not only in that great valley, but in sections, States and cities more favorably located, a mighty need exists and a great work is to be done.

To recur to the membership and organization of this and its allied associations: We can not top

highly estimate the importance of attaining the greatest degree of excellence possible in the various independent organizations that are here represented. This can be more effectually obtained through the State and local societies that are in active and friendly relations with us. The members of these respective organizations should strive to enlarge their usefulness by bringing into them all reputable physicians who reside within their jurisdiction. This can best be done by demonstrating to outsiders, through the excellence of their work, the importance and practical use of becoming members of the State societies, and leading them to feel that to keep abreast of the times it is necessary to mingle, at least once a year, with the other progressive medical men in the State, for the purpose of interchanging views on current professional topics and discussing and determining such things as pertain to the protection of the health and the general welfare of their *clientele*.

The State societies should strive to induce their members to form societies in every county of their respective States, in all cities of the same, and in all townships, or parts of counties where there is a sufficient number of physicians to justify such organizations. In this way a local and general activity will be engendered, and the average standard of professional intelligence raised to a degree which must result in great good to the residents of each State; and through general discussions of all leading questions pertaining to the health and welfare of each and every locality, measures will be evolved and remedies discovered that will prove of untold advantage to the community at large.

As for the workings of this Association, its organization has improved with each year, and I trust and believe that this advancement will be continuous, until we reach that degree of systematic arrangement which will enable us to accomplish the greatest amount of good attainable in the time allotted to its annual meetings. Improvement in details is necessary for the realization of this result; and I trust that some plan will be devised which will assign more of the special work to the various sections, leaving the Society as a whole to take charge of matters requiring its general supervision and determination. This is a subject to which I desire to call your special attention and to emphasize it, for I am confident that a majority of you will agree that it is of paramount importance. As essential to this purpose, I sincerely hope that you will adopt some plan by which will be checked the growing tendency to read or have read before this body lengthy papers that could be considered and dealt with in a much more effective manner by the separate sections.

One or two subjects need to be specially and separately considered.

CONSTITUTION AND CODE.

The committee to whom was referred the question of revision of the Constitution and By-Laws of this Association will present an entirely new paper, containing many of the valuable features of the old one; leaving out some, however, that in my opinion it was very desirable to retain.

I am glad that our rules require that this report shall lie over for a year before being acted upon. Ample time for the consideration of such an important subject will be secured in this way.

The same committee will ask that the subject of the Code of Ethics be allowed to remain over for another year.

While my own convictions in regard to the Code are of a very positive kind, I feel that, as the subject cannot be considered until the report of the committee is received, good taste and good policy both require that I should not discuss it by introducing it in this address.

I have one suggestion to make: I think that a revision of our Code should be referred to the several State medical societies entitled to representation here, and that these societies should report their action to the annual meeting of the American Medical Association. This would give us a fair expression of the opinions of the representative societies from all parts of our country, and every reputable American practitioner of medicine would have an opportunity to vote on this subject. At present, if the annual meeting is held in the West, the East and South have a minority of votes; similarly, if it be held in the East, the West and North; and if held in the South, the East and West are likely to be in number of votes unfairly represented. Equal representation in votes and views for all parts of our common country, free from the domination of States immediately adjacent to the place of our annual meetings, should be obtained in acting upon such an important subject as a revision of the Code of Ethics. It would be well for the State medical societies to obtain and include in the vote of each State, all county and district medical societies entitled to representation here.

Let the medical department of the army, navy and marine hospital service also have a vote in this matter.

The medical societies referred to constitute a very large majority of our members. The "members by invitation," the "permanent members" and "members by application" have, by our Constitution, no vote.

Let a majority of States decide this question, and let us agree to abide by this decision.

MEDICAL EXAMINING BOARDS.

A large number of States have appointed and have in operation "State medical examining and licensing boards," which have contributed greatly to the elevation of the standard of medical education in their respective States and in the country generally. In some instances, in consequence of the existence and action of these boards, colleges have raised their requirements for entrance, and especially for graduation, and now send out men better fitted in many ways for the practice of their profession. I feel confident that before many years have passed, every State in the Union, for its own protection, will have a State examining board. As far as it lies in our power we should foster and encourage these medical examiners who have a difficult, and often thankless task to perform. A conference of delegates from each State board might result in a uniform State law, which is desirable. As it is, at this time some of the State laws regarding the boards are defective.

SECRET AND POISONOUS MEDICINES.

I think this Association owes to the people of this country an earnest effort to stop the sale of secret and poisonous medicines. Free trade in physic is permitted, as far as I can learn, only in this coun-

try, and any quack can advertise in the reading and other columns of our newspapers his so-called patent medicines. Many of these nostrums are known to be poisonous, and of course hurtful. All over continental Europe grocers and druggists are forbidden to sell any pharmaceutical preparations or compounds. This right is restricted to the pharmacist or apothecary; and he is often subjected to rigorous inspection, to very rigid laws, and to heavy penalties for their violation.

If each State would require the vender of any secret remedy to subject his formula to a board appointed by the State for this purpose, said board having the power to grant or refuse a license to sell, this already great and growing evil would be materially lessened or stopped.

SMALL-POX, TYPHOID FEVER, ETC.

The police regulation of small-pox is a matter for the gravest consideration upon the part of the general government and of the several States of the union. Regulations full, comprehensive and complete should be formulated for the prevention of its introduction from without, and its eradication wherever it appears in our land. Notwithstanding the organizations known as "Anti-Vaccination Societies," which so often send out all sorts of misrepresentations, and notwithstanding misstatements from other sources, from the time of Jenner's conclusive demonstration (in 1796) down to the present hour, vaccination has been growing in favor, and now the great majority of the educated classes have become convinced of its importance. Compulsory laws have been put in force in the larger number of European countries and especially in the German Empire, where not only the army but the people at large are compelled to submit to vaccination at stated intervals—once every third year being the rule for the army.

Our large and constantly augmenting population, their facilities for travel, and their disposition to use their facilities, render it imperative that we should endeavor to obtain, as far as possible from the respective States composing our union, legislation of a uniform character upon this subject. Until this is done, there will be a constantly impending danger of local and even general outbreaks of this universal scourge of the human family. Were it not for the municipal powers that have been granted to our leading cities and exercised by them, this disease would be perpetually with us and our vital statistics would groan under the burden of its polluting ravages.

A study of the causes and conditions which produce typhoid fever, the curse of the mountain and piedmont regions, demands the utmost industry and closest observation on the part of physicians, whenever this disease makes its appearance. The great majority of writers upon this and kindred topics unfortunately reside in cities where the true type of the disease is rarely to be found, and where they are too liable to seize upon conditions which they know to be conducive to disease in general, and assign them as the active fact. Sinks, privies, sewer gas, and polluted drinking water are the specters that flit across the stage to deride and delude these investigators. I can not refrain from expressing the hope that there will arise some eminent man, or more than one, in the rural regions, possessing the intuition that is akin to genius, who will be able to

show with almost mathematical certainty the real circumstances and combinations upon which this malady depends. Be it germ, be it mite, or leucosite, the result remains the same. Individual diseases with their causes are better segregated in the country, and more reliable observations ought to be possible. Jenner and Koch were country doctors.

The contagious diseases—mumps, measles, whooping cough, scarlet fever, and diphtheria, annually carry to the grave thousands of our people, chiefly from the youths and infants, those who are nearest and dearest to us and who appeal most strongly to our tenderest sympathy. These maladies are increasing in a definite ratio to the advance in population, and while modern treatment has done much to alleviate the sufferings of their unfortunate victims, mainly through hygienic measures, still the mortifying fact is patent that their genesis is wrapped in the same obscurity that it was two thousand years ago. The germ, the malignant little parasite, we may have discovered as the source of all these troubles; but why or whence this germ? That defies our knowledge.

QUARANTINE.

One of the most important questions of the hour is that of quarantine. During the past year the apprehensions of the country have been fully aroused upon this subject, and there is every disposition on the part of the people to have such laws enacted as will render us safe against the introduction of Asiatic cholera and typhus fever. The latter has entered one of our principal ports and has infected a limited number of the population of the city of New York. Thanks to the efficiency of the board of health it has been kept under relative control and is now abating. The former, starting from its home in the East some two years since and following the track along which it has heretofore traveled, has not only reached the most frequented ports of Western Europe, but it has traversed the Atlantic, and during the last summer sought admission to our shores. Through a number of fortuitous circumstances rather than by the aid of any well-ordered quarantine, we have been spared the misery of an active invasion. It has retreated to the farther side of the ocean and seems to be preparing with renewed energy and increasing activity for a second attempt to invade us. Shall it succeed? This is the vital question which we are called upon to meet and if possible to solve. The subject is not incapable of solution, but there are difficulties which beset us owing to the character of our institutions and the organic laws under which we live. It has been shown on more than one occasion that the strict enforcement of quarantine laws in America, as well as in Europe, has prevented contagious diseases from entering the seaports of a country, when full and judicious measures were put into execution. During the late war between the States every seaport along the south Atlantic and Gulf States that was effectually blockaded was spared an invasion of yellow fever. Even New Orleans which, prior to that period, had been so frequently visited by it, was kept exempt from it through the measures resorted to for the purpose by the military commandant. Even after one case had escaped the vigilance of the quarantine officer and had taken up its abode in one of the most populous sections of the city, by prompt

removal of it to a vessel in the river, which made a speedy exit from the port, the disease was prevented from obtaining a foothold; while Wilmington, N. C., which until the last year of the war remained comparatively open to vessels plying between that point and the outside world, was subjected to a frightful scourge from yellow fever, owing to its introduction from the Bermudas. Do not these facts warrant the conclusion that yellow fever is of alien origin and never endemic in this country? I offer this to show what can be brought about where a preventive system of quarantine is scrupulously carried out. The circumstances and environment were such at New Orleans as to make it imperative upon the military officers there to keep the disease out of the city, as the army of occupation was, owing to the configuration of the country, necessarily encamped within its limits. It was an army recruited from the more northerly section of the United States and unaccustomed to the oppressive and enervating heat of so warm a climate. Had yellow fever once established itself that army would simply have been annihilated and the chronicler of the leading events of the war would have found adequate figures of comparison only in the plague of London or the Black Hole of Calcutta. These visitations come to us, however, in the majority of instances in times of profound peace, when it is difficult to induce the authorities of the country to enact laws sufficiently stringent to maintain a judicious quarantine. In America, while we enjoy the blessings of a freedom never before equalled, yet the greatest enthusiast will not fail to acknowledge that our form of government has some defects when it is called upon to grapple with questions that require the curtailment of the personal liberty of the citizen for the benefit of the people at large.

There is another drawback to the enactment of general quarantine laws. Our seaport towns as ports of entry are jealous of their local and territorial trade rights. A grand network of railroads spread over our entire country, and the ordinary channels of trade can be interrupted and the trade diverted into new directions whenever free ingress and egress to traffic do not exist at any one of our seaports. Appreciating these facts, and ever jealous in guarding their commercial interests, public sentiment in such communities always tends to suppress the truth at the inception of an epidemic; and even the press, usually free and outspoken on all matters in which the general public is interested, remains practically silent until its utterances cease to be news and a widespread epidemic has advertised itself. This is a matter of profound regret; and yet so long as human nature retains its present characteristics we may always expect such causes to produce corresponding results.

To depend upon municipal quarantine for the protection of this great country from the spread of contagious diseases is to reckon without your protecting host. The selfishness of human nature, the desire for gain, the aggressions and the potency of wealth, will all be brought to bear upon those in authority, and will, if possible, drive from place and power conscientious officers, who in the discharge of their duty fail to comply with their bequests, and interfere in any way with what they consider their rights and privileges. I trust that I shall not be held as animadverting too severely upon this sub-

ject. These remarks are not intended for any particular locality. What I have stated is sustained by the history of the past epidemics that have broken out in our country. No one can ever be safe so long as the local authorities at ports of entry are left as the sole protectors of the nation against the entrance and spread of epidemic and contagious diseases. The peculiar organization of our union of States is such as to deter those in official positions from exercising authority in any case except where the right so to do is clear and well defined. The jealous care with which the rights of the States were guarded in the formation of the constitution and the special declaration by amendment to it, that all powers not specifically granted to the general government, were reserved to the States; the provisions defining the rights of the government, and the reserved rights of the States, have been the means of engendering more antagonisms than any other issues that have arisen under it. I need not recur to the stirring scenes that have been enacted in the United States Congress on many eventful occasions. The antagonisms above referred to brought on our great civil contest, with the results which are so painfully fresh in the minds of all. It is not surprising that politicians are averse to agitating any questions which may in any manner trammel the rights of the States through laws passed by the general government. The trend of public sentiment, as shown by the laws enacted by Congress and the decisions of the supreme court of the United States for the last twenty years, manifests very clearly that the public conscience recognizes the fact that a return to old conceptions on this subject is necessary for the general good of the country. While we may admit this to be true, yet in the particular issue we have in hand, may we not fall into a very grave error by failing to perceive what is clearly our duty to the people as a whole? "The general welfare" clause in the constitution clearly gives to Congress the right to legislate for the preservation of the health of the citizens of this country, and for the prevention of the spread of epidemic and contagious diseases among them. There will be many who will cavil at this application of the clause referred to; and the attempt to enact a quarantine law of a rigid and vigorous character will meet with stout and bitter resistance. Reared in the school of strict construction as to the rights of the States, I do not hesitate to declare that the time has at last arrived in this country when, owing to the imperative exigency growing out of our great increase in population, the facilities for travel and intercommunication, and the constant flow of immigration from all parts of Europe, all patriots, representing every shade of political opinion, should unite in demanding of Congress the passage of a law, strong, concise, and yet comprehensive, that will enable the government to properly protect its citizens against disease whenever, in the discretion of its officers, the emergency may have arisen. There is as much reason why the power of the federal government should be invoked to aid in repelling the advent of pestilence, as to aid in repelling the advent of a hostile fleet or army. Once established, pestilence would cost our country more human lives and more money than a war with any foreign power. These remarks are made in consequence of the failure of our late Congress to pass such a bill. The measures which they adopted are partial and temporizing, and

fall far short of the exigencies of the hour. I will not attempt to give you the details of this law, approved the 15th of February, 1893, known as "An Act granting additional quarantine powers and imposing additional duties upon the marine hospital service." Its provisions are no doubt familiar to you all. All of its sections relating to consular regulations abroad are everything that we could wish. But when it comes to be applied on this side of the water, it is grossly defective. All on the other side of the Atlantic is compulsory; all on this side permissive and cooperative. So long as the government officers are only permitted to cooperate with state and municipal quarantine officials, just so long will the law be imperfectly executed. We must not let the matter rest here. This society should endeavor to arouse the people to a correct appreciation of their danger and of their rights and duties in regard to it, and never cease agitating it until Congress shall be forced to enact such laws as are "necessary and proper" for meeting each and every emergency. Personally I am not in favor of a quarantine of detention, but of anticipation and prevention. This is the true way of avoiding the introduction of epidemic diseases into this country. The modern system of quarantine is not a system of exclusion or even of prolonged detention; it is based upon the application of scientific methods and apparatus. I call your special attention to the significant fact that this "system of maritime sanitation" has kept New Orleans free from yellow fever for the last twelve years, and absolutely without interfering with commerce; it has been pronounced by competent observers the most complete system of quarantine in the world; and it should be adopted as a model by the federal government for our common defense, at every point where pestilence may be imported.

NATIONAL BOARD OF HEALTH.

The importance, indeed the necessity of a national board of health organization will be appreciated when it is remembered that the present laws refer almost entirely to quarantine in time of epidemics or threatened epidemics, such laws being carried into effect by the marine hospital service through the treasury department. Every important power in Europe has its chief sanitary bodies independent of the army and navy. In this country according to our form of government there are sanitary duties which can and should be performed only by municipalities, and there are duties, especially in time of epidemics, that can not effectually be performed by cities but should be looked after by the State, and thus in like manner when the States are unable to accomplish what is necessary, then the national government should do it. This is not the case as the law now stands. Two years ago at the meeting of this Association held the city of Washington, a bill was proposed and recommendations were made to the effect that a minister of health be created who should be a cabinet officer. In the recent legislation by Congress this bill though pending, was entirely ignored. At the last meeting of the American Public Health Association, held in the City of Mexico, the committee on national health legislation recommended the appointment of a national health bureau and a commissioner of health, who should be the chief sanitary officer of the United States; said bureau and commissioner

(sanitary) to be independent of the medical bureau at Washington. The law that was passed by the recent Congress was a compromise between some of the bills pending in Congress, and owing to the necessities then existing the legislation was hurried, and although in some respects in advance of what had existed before, still to the sanitarians and those interested in the sanitary welfare of the nation, it is far from being satisfactory.

I learn that there will be an organized movement to secure legislation by Congress on the lines indicated, and I would respectfully suggest that a committee be appointed from this Association to cooperate with the committee appointed by the American Public Health Association and committees of other important bodies, interested in securing the legislation needed.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

I am glad to be able to say that during the past year, THE JOURNAL of this Association has shown marked improvement in its management. I am sure that we may confidently look for still further advancement in the near future.

Before closing this address, I beg to return my thanks to my fellow members for the honor they have conferred upon me by calling me to preside over the deliberations of this Association. When I recall the men who before me have filled this chair, and when I see around me those who fill high stations, which their attainments and a just appreciation of the public have given them, I am impressed with my own unworthiness and inability to meet the requirements of this office. For my shortcomings, I beg your indulgence.

In the discussions that are to follow, the papers that are read and the questions proposed, you will agree with me that it becomes us to display no bitterness or partisan spirit, but in debate, however earnest, very carefully to remember that our opponents are entitled to credit for equal honesty of conviction and purpose with ourselves and the same desire to further the interests of this Association. The bigotry and intolerance we sometimes see in theological debates, and the partisan rancor often found in political contests, should have no place in questions that come up for consideration in an Association like this.

Let us strive to show to the world that our whole object is scientific work; and our high purpose—the good of mankind.

ORIGINAL ARTICLES.

ACUTE ULCERATIVE ENDOCARDITIS—A BRIEF RESUME OF THE PATHOLOGY OF EIGHT CASES.

Presented with specimens to the Illinois State Medical Society, May 17, 1893
BY LUDWIG HEKTOEN, M.D.

CHICAGO.

The following eight cases of malignant or acute ulcerative endocarditis, the heart lesion of each of which I have the honor to present to this society, occurred in the Cook County Hospital during the fifteen months ending April 1, 1893.

I wish to extend my thanks to all the members of the staff through whose hands these cases have passed from time to time for their gracious permission to utilize the material in this way; individual

mention of names would embarrass the necessary concentration aimed at in this report.

These cases illustrate well the various forms of acute ulcerative endocarditis from an etiological, clinical, as well as anatomical standpoint and they particularly emphasize the difficulties so frequently encountered in the diagnosis of this affection.

The cases are arranged in the following groups:

I. One instance of primary endocarditis of a normal valve.

II. Two instances of acute ulceration developing upon the sclerotic valves without any known infection atrium.

III. Two instances of ulcerative endocarditis with external lesions; in one infection of healthy valves, in the second infection of a sclerotic valve.

IV. Three instances of malignant endocarditis arising during the course of infectious processes elsewhere in the body.

GROUP I.

1. *Primary Malignant Endocarditis of Tricuspid Valves; Pulmonary Infarct; Chills and Intermittent Fever.*—Man, aged twenty-eight, molder; entered the county hospital, April 29, 1892. His family and personal history was negative; he had always enjoyed good health; he was taken ill six weeks before admission with pain in the back, chills and vomiting; since that time there had been almost daily chills followed by sweats. On entrance he was found to be jaundiced, his skin showing numerous scratches. His pulse was 100, respiration 35, temperature 102. Over the lower lobe of the left lung there was dullness, bronchial breathing, crepitant râles; the lungs were otherwise negative on examination. There was nothing unusual noticed about the heart. The liver and spleen were apparently normal. May 2. Crepitant râles over left lung in mammary and inframammary regions, while in the axillary regions there were moist râles, broncho-vesicular respiration and some loss of resonance. May 6. Patient is dull and stupid; there are a few moist râles over left lower lobe. May 11. Is getting weaker, has lost weight; the skin is dark and muddy, the sclera yellow; the spleen is palpable. The heart sounds appear normal, there is no increase in the area of dullness. The upper border of the liver reaches the sixth sterno-costal junction and a little below costal arch. The bones and joints are normal. There is pain over the liver. There is constipation. The annexed chart shows the pulse, respiration and temperature as well as the chills that occurred during his sojourn in the hospital. May 13. Exploratory laparotomy, the probable diagnosis being abscess of the liver. No abscess was found. Death.

The post-mortem examination (by Dr. Durr, to whom I am greatly indebted for the specimen) showed the following: the pericardium showed no changes; the heart (Fig. 1) weighed 285 grams; the semilunar valves were competent to the water test. The tricuspid valves show large irregular masses of fibrin upon the auricular surface; these masses vary in thickness, in size and in outline; they are rough and granular; upon the cusp nearest the pulmonary orifice is a large mass, about one cm. in height, projecting into auricle; in the center of the summit of this mass is an irregular opening leading into a cavity formed by the aneurismal bulging or sacculatation of the valve out into the auricle. Near

this aneurism is a smaller one, two mm. in diameter, without any thrombotic deposits about the margins; many minute perforations and quite marked areas of ulceration can be made out in the endocardium under the thrombotic masses already described. In both pleural cavities were extensive fibrinous adhesions. In the lower part of the left upper lobe was a solid, red wedge-shaped area over which there was a fibrinous pleuritis. The other organs showed no gross changes.

GROUP II.

1. *Fibrous Endocarditis of Aortic and Mitral Valves; Acute Ulceration of Aortic Segments.*—Colored man, forty-eight years old, had syphilis at twenty-eight; passed through an attack of rheumatism in the fall of 1891, but nothing could be learned as to the character and duration of this illness; was admitted into the Cook County Hospital (homœopathic service), February 17, 1892, after a sickness of four weeks with swelling of the lower extremities and the abdomen, scanty urine, anorexia, constipation and insomnia. The examination showed a mitral regurgitant murmur, much ascites, much œdema, and considerable dyspœa. He died February 27th, 1892, without having had any fever or other symptoms of acute infection while in the hospital.

The post-mortem examination showed œdema, ascites, hydrothorax, compression atelectasis of the right lung, cyanotic atrophy of the liver, chronic gastro-adenitis, passive congestion of the spleen and the following changes in the heart: it weighs 502 grams and appears equally enlarged as to both ventricles; there are no external changes; the endocardium in the right half is negative; the aortic valves are incompetent to the water test; the mitral orifice admits two finger tips; the free margins of this valve are thickened, rounded, stiff, fibrous and the cordae tendineae are also stiff and thick, but there are no recent vegetations. The aortic valves are much changed (Fig 2); the free margins are thickened and retracted and projecting from the ventricular surfaces near the free edges are long, filamentous, fibrinous masses; in the intercoronary segment is a perforation, about four mm. in diameter, with a crater-shaped mass of fibrin and calcareous granules around the ventricular margins; upon the center of the anterior mitral leaflet is a mass of granular thrombotic deposit corresponding to the point where the margins of the valve aneurism would touch the endocardium during systole. Finally there is a small loss of substance in the endocardium below the attached margin of the perforated aortic cusp. The myocardium showed no other changes except those of hypertrophy and dilatation already referred to. It was not possible to demonstrate any bacteria in the margins of the valvular aneurism.

2. *Chronic Changes in the Aortic Valves; Acute Ulcerative Aortic Endocarditis. Rupture of Aortic Arch with Hemorrhage of Menstruous Part of Interventricular Septum.*—Man, age thirty, was admitted with history of having been sick for five weeks, but any accurate idea as to the nature of the disease could not be obtained. He was in a chill at the time of admission and auscultation showed a rubbing, systolic murmur over the heart which could be followed into the great vessels; he had a high temperature, rapid pulse and respiration, and appeared moribund from exhaustion. Death after twenty-four hours. The post-mortem ex-

amination showed the following changes in the heart: It was considerably increased in size, weighing 450 grams; the aortic valves were incompetent to the water-test; the free margins of these valves were thick, stiff and retracted; upon their ventricular surfaces were large fibrinous masses adherent to necrotic areas in the endocardium; the thrombotic deposits were most marked upon the intercoronary segment and in the mural endocardium immediately below the attached margin of this valve was an opening surrounded by an irregular fibrinous mass; this opening led into an aneurismal sacculatation of the membranous part of the inter-ventricular septum or undefended space which projected into the right auricle between the valves; upon its summit was a perforation whose margins were covered with a huge fibrinous excrescence. In the spleen were three characteristic, medium sized, anæmic infarcts without any evidence of commencing suppurative softening. The other organs in the body were macroscopically normal with the exception of a few pleuritic fibrous adhesions and cloudy swelling in the kidneys and the liver. Micrococci were found in the sections made from the aortic valves and the aneurism of the membranous part of the septum, but no cultivation experiments were made.

GROUP III.

1. *Fibrous Endocarditis of Aortic Valves; Superficial Burn of Right Arm; Acute Aortic Ulceration; Sero-fibrinous Pericarditis.*—Man, aged twenty-four, received a superficial burn of the right arm for which he was admitted to the hospital the next day. The arm was enclosed in a wet boric acid dressing and three days later this was changed to a boric acid and bi-smuth dusting powder, the burn being nearly healed. On the same day the patient was seized with headaches; he had chills; the temperature went up to 105.2, and there appeared severe pain in the lower part of left chest. The patient was transferred to the medical service of Dr. R. H. Babcock; here physical examination showed the man to be fairly well nourished; dullness on percussion over upper portion of left lung anteriorly; auscultation did not yield any satisfactory result according to the record; the urine had a specific gravity of 1024, contained no albumin and microscopic examination was negative. The pulse, respiration and temperature can be studied from the annexed chart. Death Feb. 11, 1892.

The autopsy showed an anatomically typical acute sero-fibrinous pericarditis; a chronic aortic endocarditis with thickening and retraction of the free margins, valvular insufficiency, and some hypertrophy and dilatation of the left ventricle, the heart weighing 480 grams. Upon the left coronary cusp was a large mass of fibrin and crumbling material covering the ventricular surface, and in the center of this area was a small perforation; the adjacent portion of the intercoronary leaflet showed a similar condition with a smaller perforation; in the myocardium just below the joint attachment of these two valves was a small necrotic area and the intima lining the sinus valvular behind the left coronary cusp presented a gray, soft necrotic appearance. No bacteriological examination was made.

2. *Gangrene of Foot from Frost; Pulmonary Abscess; Acute Ulcerative Endocarditis; Septic Renal Infarct; Streptococci and Staphylococci in the Tissues.*—Man, aged thirty-three, was admitted under Dr. J. B.

Murphy's care on Feb. 12, 1893, for frozen left foot; the foot was gangrenous and foul, and on Feb. 15 the foot was amputated in front of ankle joint, the line of demarcation being fairly well developed. The patient at the time appeared to be suffering from septicæmic symptoms and on the 16th there was noted dullness over the upper right lobe in front and also considerable cough. At this time the temperature was 105, the pulse 108, respiration 38 and the record shows the temperature to have remained high with some morning intermissions until death occurred, Feb. 22, the pulse increasing in frequency. The stump did not during life appear otherwise than pursuing an aseptic healing. After death there was found the following:

The stump was free from suppuration and there was no thrombo-phlebitis in its vicinity. In the right upper lobe was found a cavity as large as a hen's egg, filled with thin, yellow, purulent fluid, without any distinct communication with the bronchi, the wall being quite thick, containing soft yellow foci. In the heart, which was otherwise quite normal, the aortic valves showed large thrombotic masses upon the ventricular surfaces, quite firmly attached to necrotic areas in the endocardium. The right kidney contained a wedge-shaped infarct which was in process of purulent disintegration. There was an acute splenic tumor.

Cover glass preparations from the lung abscess, the aortic valves, and the softened infarct showed cocci in large numbers and especially streptococci; inoculation of gelatine and agar tubes produced cultures of staphylococcus aureus and streptococcus. Sections from the valves and from the wall of the pulmonary infarct, stained according to Gram or with Löffler's methylene blue, showed cocci in large numbers, frequently arranged in rows; the sections of the valves, stained by other methods as well, showed the characteristic changes of acute ulcerative endocarditis.

GROUP IV.

1. *Acute Malignant Endocarditis of Mitral Valves Secondary to Lobar Pneumonia.*—A man, forty-five years old, was admitted moribund from a fibrinous pneumonia of the lobes of both lungs. The post-mortem examination showed the lower lobe of the right lung to be in the stage of gray while the lower left lobe was in that of red pneumonic hepatization; there was also a fibrous, retracting endocarditis of the free aortic valve margins with valvular insufficiency, hypertrophy and dilatation of the left ventricle. Upon the auricular surface of the mitral valves were massive deposits of fibrin upon a necrotic endocardium (Fig. 3) and in one place there was a circular perforation of the valve, one cm. in diameter, which was covered with fibrin. There were no evidences of embolism in any of the organs. Unfortunately decomposition had so far advanced at the time of the autopsy that no bacteriological examination was attempted.

2. *Lobar Pneumonia; Right Empyema; Operation; Acute Ulcerative Endocarditis of Aortic Valve Segment and Adjacent Endocardium.*—Man, porter, age thirty-eight, admitted February 28, 1893, with following history: He drinks beer and whisky every day; he had pleurisy three months ago and malaria several years back. The present illness commenced eight days ago with fever, cough, pain in upper part of

chest but now in lower right side; he can't take a deep breath; has had no chill; the expectoration has been white and yellow. Examination shows a fairly well nourished man; conjunctivæ a little yellow, tongue clean, tremulous; respiration short and catchy; over lung are numerous moist râles and over right lower lobe posteriorly are fine crackling râles. Pulse 108, temperature 102, respiration 32 on admission. On March 8, the temperature had gradually reached the normal figure, pulse was then 68, respiration 28. In two days there is noticed a slight evening temperature elevation; on March 16, the temperature at 8 A. M. was 100, at 8 P. M. 102.6 and it continued at about this range until the 23d when the diagnosis of right empyema was made and the patient was transferred to the surgical service of Dr. Murphy where a portion of the sixth rib was removed just below the angle of the right scapula, the pleura incised with escape of pus, and drainage tube inserted. The patient's condition at the end of the operation is noted as very poor and on the 25th of March he died.

The autopsy showed two encapsulated pus masses in the upper posterior part of the cavity not reached by the drainage tube; some atelectasis of the right lung; complete fibrous obliteration of the left pleural cavity and a small area of broncho-pneumonia in the lower left lobe; also adhesions between the liver and the diaphragm. In the heart the intercoronary aortic segment showed upon the ventricular aspect a crumbling, gray, friable mass, one cm. in height, two cm. in diameter with a crater-shaped opening into a valvular aneurismal cavity; the endocardium below the attached margin of the valve was necrotic and crumbling and showed irregular openings leading into spaces in the wall of the ventricle without any perforations into any of the neighboring cavities; upon the auricular surface of the anterior mitral segment was a small thrombotic deposit on a necrotic area in the endocardium which may be connected with the lesions described about the aortic valve; otherwise the heart was normal; it weighed 240 grams. In each kidney was a small anæmic infarct which in the left kidney had commenced to disintegrate. There was an acute splenic tumor and the solid organs showed parenchymatous degeneration. The bacteriological examination showed in the necrotic, mural and valvular endocardium both streptococci and staphylococci and also a bacillus which appeared like the bacterium coli commune.

3. *Acute Leptomeningitis: Ulcerative Endocarditis of Aortic Valves.*—A man, thirty years old, was admitted unconscious with the history of becoming suddenly ill the previous day; his pulse was 120, temperature 103, respiration 20; the pupils reacted to light; the retinæ were normal; the stomach was empty; the heart and the lungs could not be satisfactorily examined on account of constant loud breathing. In a few hours the unconsciousness deepened into coma, there were involuntary discharges, and the nurse reported spasms. Death after twenty-four hours. The autopsy showed a double fibrous pleuritis with pleurogenous interstitial changes in the lower right lobe; pulmonary oedema; fibrous perisplenitis and perihepatitis; cloudy swelling and chronic interstitial changes in the kidneys; chronic deforming endoarthritis, and the following changes in the brain and in the heart. There was much subdural turbid fluid and the pia-arachnoid was oedematous and in the

meshes over the pons and the cerebellum was purulent fluid; all the ventricles contained purulent turbid fluid with a yellow sediment in the dependent parts of these cavities. There were no macroscopic cerebral changes. The cavities in the vicinity of the brain were negative on opening and inspection. The heart (Fig. 4) weighed 320 grams. There are no changes to be noted except those upon the aortic valves the intercoronary segment of which presents a circular perforation two cm. in diameter from the aortic aspect; around the ventricular margins is massed a crumbling wall of grayish, granular material, one cm. high, the opening in the summit being seven mm. across. The other aortic leaflets are negative on examination. There were no old changes in the valves. In the center of the ventricular aspect of the anterior mitral segment is an irregular loss of substance, two mm. in diameter, leading into a small cavity, filled with granular material, between the endocardial surfaces of the valve. Cover glass preparations show streptococci in large numbers in the meningeal exudate and in the granular material about the perforation in the aortic valve. No culture experiments were made.

Resumé:—Of these eight cases the instance of tricuspid endocarditis appears to be, as far as observations go, an example of primary or cryptogenetic disease of the healthy tricuspid valves. There are two cases of the not so very infrequent engraftment of an acute ulcerative process upon the sclerotic valves of chronic heart disease without the known presence of any wound, septic process or acute infectious disease. Then there are two cases connected with external lesions through which the infection might have occurred; in one the probable atrium was a superficial burn, but this case was further complicated by a sero-fibrinous pericarditis whose exact relation to the malignant endocarditis can not at this time be established; in the second case it is quite clear that a streptococcus infection took place from a gangrenous foot causing a pulmonary abscess, acute aortic ulceration, and a suppurative anæmic renal infarct.

The three remaining cases are associated with acute diseases elsewhere in the body; one with a double fibrinous pneumonia, one with an acute leptomeningitis, the infection coming from an unknown source; the third case of this kind occurred in a man who died with the diagnosis of empyema following lobar pneumonia.

All the cases occurred in men belonging to the laboring class, the youngest being twenty-four, the oldest fifty years of age.

There was one instance of tricuspid and one of mitral disease; in the other six cases the aortic valves were primarily involved and in three the mural endocardium showed areas of necrosis and ulceration which, in one instance led to the production of an aneurism of the undefended space and rupture into the right auricle; in one case the aorta was attacked by the extension of the process from one of the valves. It is also of interest to note the spot of vegetation or necrosis in the center of the ventricular surface of the anterior mitral flap where it would come in contact with the vegetating mass or aneurismal bulging of the aortic valves; this spot consequently appears to be due to contact infection and was present in three of the six instances of aortic disease. In three of the aortic cases the valves

were the seat of a chronic endocarditis upon which the acute process implanted itself; in one of these cases the bacteriologic examination failed to reveal any bacteria and it would seem that the inflammatory and necrotic changes in the endocardium had fallen into temporary or permanent quiet suggesting the probability of recovery from the acute symptoms; this corresponds well with the clinical facts in the case which show that the patient died from the effects of an uncompensated valvular lesion rather than from an acute infection (Group I, Case 1). In one of these instances of acute, destructive changes developing upon sclerotic valves was a history of previous attack of rheumatic fever obtained to which the chronic endocarditis could be traced.

Otherwise the anatomic and histologic changes presented by these specimens are so typical and characteristic of ulcerative endocarditis as to require little elucidation; they show vegetative and necrotic changes in profusion with the production of typical valvular aneurisms and subsequent rupture. It is quite noticeable that in only four of the cases were there evidences of embolism and infarcts and here the embolic changes were quite limited; as a rule the showers of infected emboli from the endocardial vegetations and ulcerations constitute a striking feature in the clinical as well as the anatomic manifestations of this form of endocarditis.

A number of facts and considerations in regard to the etiology and pathology of acute ulcerative endocarditis may be summarized as follows:

1. The disease is caused by the localization of microbes in the blood upon the endocardium. The streptococcus pyogenes, the micrococcus lanceolatus (pneumococcus), the staphylococcus pyogenes are found most frequently and in the order named. Various other microbes have been found also, such as the pus microbes, the bacterium coli commune, the gonococcus, the bacillus typhosus, as well as bacteria that have not been found in other diseases and are in so far as yet peculiar to malignant endocarditis. Recently the bacillus diphtheriae was found in the endocardial lesion (Howard, *J. Hosp. Hosp. Bull.*, April, 1893). Experimentally the disease can be produced by first causing some mechanical or chemical injury to the valvular endocardium and subsequently injecting cultures of various bacteria into the blood, or by intravenous injections of cultures of staphylococcus pyogenes aureus on potato suspended in water with scrapings from the potato when the micrococcus agglomerations attach themselves to the endocardium more readily than the single cocci (Rosenbach, Wyssokowitch, Weichselbaum, Prudden, Fränkel and Sanger, Netter, Gerartieu, Ribbert).

2. Acute ulcerative endocarditis is met with as a secondary lesion in the acute infectious diseases, notably and most frequently pneumonia, also in meningitis, acute articular rheumatism the specific fevers, gonorrhoea, dysentery and so on. It is frequently incorporated into suppurative, septic and pyæmic processes. Finally it may occur as a primary or cryptogenetic affection, developing without any known or demonstrable infection atrium. From the mycotic endocardial foci microbes and infected fragments may be carried away by the blood current and give rise to embolism in the various parts of the body, local necroses, and secondary pus accumulations.

3. In over one-half of the cases (three-fourths according to Osler), the acute ulceration is implanted on an old valvular lesion, the absence of endothelium and the roughness presenting assailable points for microbial invasion. This is the only competent reason for the occurrence of an overwhelming majority of the instances in the left heart but the explanation is not complete, because of the cases affecting primarily healthy valves, over two-thirds occur in the left side and about one-third in the right half.*

EXPLANATION OF PLATE.

FIG. 1. Acute ulcerative endocarditis of tricuspid valve with rupture of valve aneurism through which watch has been passed. Group I.

FIG. 2. Acute ulcerative endocarditis engrafted on sclerotic aortic valves; perforated aneurism; necrotic spot in center of anterior mitral flap. Chronic mitral endocarditis. Group II, Case 1.

FIG. 3. Acute ulcerative endocarditis of mitral valves following lobar pneumonia. Group IV, Case 1.

FIG. 4. Acute ulcerative endocarditis of aortic valves; ruptured aneurism; necrotic spot in center of anterior cusp. Group IV, Case 3. Acute leptomenigitis.

THE INFLUENCE OF HIGH ALTITUDES ON THE ARREST OF PULMONARY PHTHISIS.

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A generation ago, in prescribing change of climate for consumption, the usual medical advice was that the patient should take a sea-voyage, should spend a period of time in travel, or should resort to some locality with a mild and equable temperature; little regard being paid to other factors of climate than temperature alone. But with the appearance in 1864 of Dr. Hermann Weber's "Climate of the Swiss Alps," began a change in medical opinion in favor of high altitudes, a rarefied atmosphere being esteemed the most important climatic factor. The latest phase of this changed opinion has been well formulated by James Alex Lindsay, M.A., M.D., in his work on "The Climatic Treatment of Consumption." Says Dr. Lindsay:¹

"The characteristics of mountain climates which are fairly constant, are as follows: Increased rarefaction, directly proportionate to the elevation; great purity of the air, and freedom from organic contamination; much ozone; free solar radiation; abundance of light, and freedom from fog. The tendency of mountain climates is towards dryness rather than humidity." . . . "There can be no doubt that the most essential of all is the rarefaction of the air, the only important factor common to all the mountain sanatoria of proved efficacy."

Dr. S. E. Solly, author of the article on climate in Hare's System of Therapeutics (H. C. Lea & Co., Philadelphia), arrives at the conclusion that: "In prescribing a particular resort for a given case of consumption" . . . "the broad truth remains that of all climatic factors, in the treatment, as well as in the prevention of phthisis, elevation is by far the most powerful of them all."

* Out of seventy-eight cases of ulcerative endocarditis of healthy valves, twenty-four were right sided and fifty-four left sided.

NOTE.—In Hamilton Text-Book of Pathology, Vol. I, will be found references to the more important literature on ulcerative or malignant endocarditis.

¹ I quote at second hand from a reprint of an essay in The National Magazine, February, 1892: "Can Consumption be Cured?" by A. J. Meuer, M.D.



Fig. 1.



Fig. 2.



Fig. 3.



Fig. 4.

And Dr. C. Theodore Williams, in his essay entitled "Influence of Climate on Health," (v. a Treatise on Hygiene and Public Health, Stevenson and Murphy, editors; P. Blakiston, Son & Co., Philadelphia), after enumerating and recommending different mountain climates for phthisis, summarizes his views as follows: "Though these groups vary considerably in climate as regards temperature and moisture, they all agree in the reduction of the barometric pressure, and this is the essential feature of the whole series."

But no climatologist, probably, has exerted a greater or more widespread influence on the English-speaking medical world, in advocating the claims of high altitudes, than has Charles Denison, A.M., M.D., whose wonderfully able, though rather too condensed little pamphlet: "The Preferable Climate for Consumption," has been reprinted from the "Transactions of the Ninth International Medical Congress," for free general distribution, by order of the legislature of Colorado.

In discussing the comparative importance of different climatic attributes in the arrest of chronic pulmonary disease, while cataloguing five principal, and five confirmative factors of climate, Denison gives first rank to "*dryness* as opposed to moisture." Second, "*coolness* or cold preferable to *warmth* or heat," and third, "*rarefaction* as opposed to *sea level pressure*." And under caption third he says:

"That altitude is not made to precede dryness and coldness may need to be explained, in view of the great prominence given to elevation by Jaccoud in his excellent work on pulmonary phthisis, which, by the way, contains a better appreciation of the benefits of climatic treatment than any other similar book extant. The difference is this: In the present classification *the qualities which altitude produces* (italics mine) are given their due prominence without special reference to their causes, while rarefaction is considered as an individual quality, with special reference to its mechanical effect upon the respiratory function."

It would seem that no other construction can be placed on this language than that in the author's opinion various other climatic factors, in addition to aerial rarefaction, are caused by altitude; and that of the factors so caused, *dryness* and *coolness* or *cold* are of first and second relative importance respectively. Indeed the author states explicitly in a footnote on page 8: Upon temperature, elevation has a constant effect in the production of cold," and again (p. 4), "Cold is probably the most important factor in the production of dryness, and elevation is not far inferior." But we shall farther on see that the extremest degree of dryness may be found almost at sea level and in connection with a high mean temperature; while it must be evident, to whoever will consider the matter a moment, that the terms *coolness* and *cold* are purely relative and, aside from their implication of an influence on the absolute humidity of the atmosphere, are utterly indefinite in their significance.²

And to buttress the chain of reasoning of thinkers whom the medical world delights to honor, statistics may be had in sufficient abundance to demonstrate that actual results observed at high (and dry) altitudes are incomparably better than at low (and humid) altitudes; citing for comparison Austin Flint's 670 cases, with but seven cured and no statement of number benefited, in a compilation of 1,809 cases sent to "*various* low climates," of which number 1,000 had been reported by one other authority.³

But while statistics may be marshalled to prove or disprove any debatable proposition, although when collated from a past generation they are too often valueless as bearing on the climato-therapy of the present day, yet a most valuable summary is furnished in juxtaposition with these cases, demonstrating that in the Swiss Alps and at Colorado resorts with an altitude of 4,500 feet and upwards, results have been attained such as have certainly never been reported from the "*various* low climates" to which the 670 consumptives resorted as instanced by Dr. Flint, or to which the unfortunate 1,000 repaired, as quoted from Dr. C. J. B. Williams.⁴

The fact being admitted then, that about 37 per cent. of the patients sent by several reputable observers to the Swiss Alps and to Colorado have been reported cured, while about 74 per cent. have been benefited, it does not seem remarkable that the view expressed by Dr. Lindsay should have become a widely accepted medical doctrine, viz.: "There can be no doubt that the most essential of all (the characteristics of mountain climates) is the rarefaction of the air, the only (?) important factor common to all the mountain sanatoria of proved efficacy." But having just enumerated six different "characteristics of mountain climates which are fairly constant" and having further stated that "the tendency of mountain climates is towards dryness rather than humidity," this conclusion by Dr. Lindsay of the unimportance of all other factors excepting rarefaction alone, would look to an unprejudiced reader to be hardly so free from doubt as it evidently appears to his mind.

Let it not be forgotten in this connection that so acute an observer and thinker as Dr. Denison, in his catalogue of the comparative importance of different climatic attributes, after asserting as quoted above, that "*dryness*" and "*coolness* or *cold*," (to which he gives first and second rank respectively) are among the qualities which altitude produces, gives only *third* rank in order of prominence to "*rarefaction* as opposed to *sea level pressure*." But if Denison be correct in classing "*dryness*" and "*coolness* or *cold*" among the qualities, and indeed, as the very most important qualities which altitude produces, it follows that Dr. Lindsay must be in error when he claims that "the rarefaction of the air (is) the only important factor common to all the mountain sanatoria of proved efficacy."

A logical result of the enthusiastic claims made for a generation past in behalf of the influence of the rarefaction of the air on the arrest of phthisis, was manifest in the line of treatment pursued by a noted and capable clinical lecturer of Louisville, Ky., who, in 1877-78, during my term of service as

² Without going out of the way to propound the counter-thesis (as being beside the question) that, the degree of relative dryness being the same, a comfortable degree of coolness is always preferable to uncomfortable heat; and that *warmth* is, in a majority of cases, not only more agreeable but also more conducive to the welfare of feeble and anemic invalids than *cold*, it will suffice in this connection to advert to the fortunate fact that there are not a few other factors besides altitude which contribute to the production of agreeable temperatures, among which not the least important is a constant and brisk air movement in summer in some very dry localities, which, from their only moderate

altitude and southerly latitude, one might expect to find unendurably warm or, indeed, depressingly hot.

³ Harter's System of Therapeutics, Art. Climate, H. C. Lea & Sons, Philadelphia.

⁴ Ibid.

one of the house physicians to the city hospital, put his patients, in the acute progress of pulmonary phthisis, through a series of calisthenic exercises with a view, by deep and forced inspiration and expiration, to obtain the same benefits of expansion of the acutely inflamed and infiltrated lung tissue, which are claimed as due to the rarefaction of the air in the Swiss Alps and in Colorado.

The same influence, no doubt, contributed not a little to the invention and quite widespread use of the pneumatic cabinet and kindred apparatus, which by utilizing the expansile tendency of compressed air brought the mechanical advantages generally claimed for the aerial rarefaction of high altitudes into the inner sanctuary of the doctor's office, thus placing "the only (?) important factor common to all the mountain sanatoria of proved efficacy" within the reach of every patient, without the necessity of leaving home. Judging, however, by the absence for a year or two past of all reference in current medical literature to the pneumatic cabinet, as a factor in the arrest of phthisis, the casual observer would suppose its use has failed to fulfill the hopes of its advocates.

Dr. Denison's claim, as quoted above, that the prime factor, *dryness*, is one of "the qualities which altitude produces," qualified as it is by Dr. Lindsay's assertion that "the tendency of mountain climates is towards dryness rather than humidity," may not, however, be accepted without further qualification. For in "Denison's seasonal chart, showing combined atmospheric humidities for winter, 1883," (op. cit.) Pike's Peak, with an elevation of 14,134 feet, appears as a humid blue oasis in the midst of the lurid red which marks the otherwise dry and arid Rocky Mountain plateau. But this very dry area, designated on the chart by a uniform red color, is so extensive as to demonstrate that whether or not elevation be an important factor in the production of dryness, it certainly is not essential thereto. For, according to the chart, this arid red region includes not merely the noted dry table-lands of Colorado, situated more than a mile and a half nearer to sealevel than is the humid summit of Pike's Peak, but it extends south and west without a break in the uniformity of its tint to nearly the borders of salt water, including Yuma, Arizona, where the altitude is some 13,993 feet lower than the summit of Pike's Peak, and but 141 feet above the sea.

Of course, in calling attention to this fact I must not be understood as claiming that so capable an authority as Dr. Denison has ever advocated the resort to an altitude such as that of Pike's Peak for the arrest of consumption, though he does mention "10,000 feet as a possible extreme in the southern portion (of the United States) in summer." (Op. cit., p. 14.) My purpose, on the contrary, is to show from the authority of a painstaking statistician, who has gone to the prodigious labor of compiling "some eight million separate signal service observations into the Annual and Seasonal Climatic Maps of the United States," (op. cit. p. 2) that, while dryness and altitude may be and often are coincident, the one is by no means a necessary consequence of the other. And that, while "the tendency of mountain climates is towards dryness rather than humidity," at least in those altitudes where the arrest of pulmonary complaints may be hoped for, yet as a matter of fact, the very greatest degree of possible dryness

may also be found at altitudes within a few hundred feet of sea level. And not only is this true, but there are elevations also, well within the limits recommended by our advocates of high altitudes, such as those along the seaward slope of coast mountain ranges, which very often have an exceptionally high percentage of humidity by reason of the impact against them of the prevailing humid sea-breezes,⁵ and for that very reason, there seems little room for doubt, are specially ill adapted for consumptives as a health resort.

A consideration of this fact seems to have led Dr. A. J. Meuer, while discussing the cognate question of an altitude of immunity from phthisis, to the conclusion, after enumerating the points of superiority in Colorado's climate, that (op. cit. p. 5) "in the mountain region between the eastern slope of the Rockies and the Pacific coast the conditions vary to such an extent that *altitude alone can scarcely be said to enter into the account at all*, unless accompanied by the long list of favorable factors above enumerated. *Accompanied by these conditions, however, altitude is everything!*" (Italics mine.)

It is a fact beyond question or cavil that both in the Swiss Alps and in Colorado, at altitudes ranging from 4,000 to 6,000 feet above sea level, a larger percentage of consumptives is benefited by the climate than is recorded of any of the popular resorts of a generation ago, most of which were characterized by not merely sea level pressure but also by great humidity of the atmosphere. What are the factors of climate which bring about these later so gratifying results? The coincidence that a high altitude, and consequent rarefaction of the air, is common both to the Swiss Alps and to Colorado is so evident that, on first glance, many otherwise cautious observers have jumped to the conclusion that aerial rarefaction is *the* curative influence; or is, at least, *a* curative influence of paramount value. And much labor has been expended in the production of many, not always harmonious, and often unphysiological explanations of how the attenuation and lessened pressure of the air produce the beneficial results that have there been observed.

The Swiss Alps, like Colorado, are mid-continental in their situation. The sea breezes which penetrate so far into the interior have been robbed of their moisture by every chain of hills and every range of mountains over which they blow. The driest atmosphere of all Europe, at least in winter, is doubtless in the Alpine region of Switzerland; although Davos, its most noted health resort, with nearly the same altitude as Denver, hardly more than approximates

⁵ Prof. E. A. Parkes, in his work on Practical Hygiene, in discussing the climate of India (Vol. II, p. 336, Wm. Wood & Co., N. Y., 1883) says: "The humidity of different parts of India varies extremely; there are climates of extreme humidity—either flat, hot plains, like lower Sindh, where, without rain, the hot air is frequently almost saturated, and may contain ten or eleven grains of vapor in a cubic foot; or mountain ranges like Dodabetta in Madras, 8,640 feet above sea-level, where during the rainy season of the year the air is almost saturated; a copious rain at certain times of the year may make the air excessively moist, as on the Khasyah Hills, where the southwest monsoon parts with its vapors in enormous quantities."

"When the southwest monsoon, loaded with vapor, first strikes on high land as on the Western Ghats, on the Malabar coast, or on the mountains of Tenasserim, and especially on the mountains of the Khasyah Hills, at some points of which it meets with a still colder air, a deluge of rain falls, as for example, at Cannanore (Malabar) 121 inches; Mahabeshwur, 253 inches; Moulmein (Tenasserim) 180 inches; Cherrapoonjee (Khasyah Hills) 600 inches." On the succeeding page the statement occurs that "in inland districts the southwest monsoon having lost most of its water as it passed over the hills, may be comparatively dry."

And Dr. Denison, in a foot note to page 8 (op. cit.) referring to the favorable location of the eastern slope of the Rocky mountains, mentions "the protection of mountain ranges which drain western humid air currents of their moisture."

to that degree of low relative atmospheric humidity which characterizes the Rocky Mountain plateau.

During the winter months while this Alpine valley is clad in a mantle of crisp, dry snow, consumptives from the lower and damper levels resort thither on the advice of the most capable physicians of every nation of Europe. And though advanced or acutely progressing cases of phthisis seldom do well, the most gratifying improvement is often noted in the incipient stages. But with the breaking up of winter and the melting of the snows in spring, there is a hegira from Davos. A uniform consensus of medical authority opposes a prolongation of the invalid's stay into the spring of the year. Why?

If a rarefied atmosphere be the factor of climate which arrests the progress of phthisis at Davos, why must invalids who have made favorable progress during the winter months fly for their lives on the approach of a milder temperature? The altitude is not appreciably diminished by the melting of the snow. The atmospheric pressure remains "fairly constant" in spring, as in winter, at about two and one-half pounds per square inch less than at sea level. The act of respiration continues just as frequent and just as deep as before, and the infiltrated pulmonary tissue, inflamed and sensitive though it be, is no less thoroughly expanded by the deeper and more frequent respirations, and no less permeated by the attenuated air, than when the thermometer was below zero and the snow was crisp and dry.

Dr. Denison's explanation of this noteworthy and most important fact is (op. cit. p. 14) "that we in America have an immense advantage over most European high climates, in that we keep up the curative effect by suitable increase of altitude in summer. Instead, they are compelled, as at Davos, St. Moritz, etc., to give up the chosen climatic treatment during warm weather." And on page 7 the statement is made: "It is to secure the cooler temperature in summer time that some of the phthisical patients from the plains are sent higher up to the parks and divides of the Rocky Mountains." Dr. Denison, be it remembered, ranks "coolness or cold" as the most important attribute of climate next after "dryness."

But when regard for their welfare compels consumptives to abandon Davos by reason of the rise in temperature caused by the approach of spring, were Denison's explanation the correct one they would hardly resort, with the unanimous approval of the best medical advisers, to Badenweiler and Freiberg in the Black Forest, and to other widely esteemed continental resorts where the snow has melted earlier, and where the ground is dry and the air is relatively warm. Then too, there are habitable Alpine heights but little more elevated than Davos, where the summer temperature is cooler far than in the mountain parks of Colorado, and the air is yet more rarefied than at Badenweiler. But these heights are close to the line of perpetual snow and, in summer, to almost perpetual thawing.

In the absence of any systematic meteorological observations continued at Davos throughout the year, whoever will dispassionately consider the facts in the case will, I think, be forced to recognize that, with the melting of the Alpine snows, the erstwhile dry atmosphere of the Swiss Alps must necessarily become relatively charged with moisture.⁶

If, as Dr. Denison teaches—and the doctrine receives my fullest endorsement—if *dryness* be the factor of prime importance in the climatic arrest of phthisis, then the reason why invalids are restored to health at Davos and in Colorado is not because of the altitude and consequent rarefaction of the air, for, as Dr. Meier well says (op. cit. p. 5), "altitude alone can scarcely be said to enter into the account at all, unless accompanied by the long list of favorable conditions above enumerated"—chief of which is *dryness*. And the reason why consumptives are compelled to abandon Davos on the approach of spring, in spite of the altitude remaining "fairly constant," and notwithstanding they are forced to resort for continued climatic treatment to lower elevations where the temperature is not so cool, is because a damp temperature at high altitudes during the blustering season of the year when raw winds prevail, if of sufficient duration will, in cases of incomplete arrest, almost infallibly occasion a fresh extension of the disease.⁷

There are many elements of uncertainty entering into statistics designed to show the percentage of cases of phthisis actually cured by a given climate. A prolonged period of observation is a condition which may not be eliminated from consideration in such patients as may seem from their general appearance, and even from a careful physical examination, to have fully regained their former health. How long this probationary period must last hardly any two observers are agreed. Many cases too, appear fully recovered only so long as they remain in the more favorable climate; while a return to more humid atmospheres—the only positive test—is very frequently followed by a renewal of the old symptoms of disease. A knowledge of this truth has probably contributed to the paucity of positive statistics. But the fact remains, which may be verified by every traveler, that there are many thousands of former sufferers from pulmonary phthisis contracted in damper climates, who are now living throughout the drier regions shown on Denison's seasonal chart, at altitudes ranging from a few hundred to over 7,000 feet above sea level, and whose ailment is in a state of apparently complete arrest.⁸

If, then, it appears as a logical deduction from established facts that altitude plays no part or, at best, an unessential part in the arrest of the phthisical process; that relative dryness of the atmosphere, and not rarefaction, is the invariable and indispensable climatic factor of all regions of *proved* efficacy, be they elevated or not; there yet remains for consid-

humidity occurs from midnight to 4 A. M., or when the daily temperature is at the minimum, and the minimum humidity at 2 P. M., when the temperature is at the maximum, the curve of humidity being thus inverse to that of temperature." Two exceptions are cited to this law, of which one is as follows: "In the climate of Central Asia in winter, the amount of vapor is very small, and the increase to the relative humidity during the day is probably occasioned by the most active evaporation from the snow during the day." (Italics mine.)

⁷ Dr. C. T. Williams, in discussing the influence of atmospheric humidity on phthisis, well expresses the idea when he says (op. cit. p. 190): "The combination of moisture and heat, as is seen in the sirocco wind, is felt oppressive by most people, but it is doubtful if the combination of cold and moisture be not more harmful."

⁸ It is a pardonable error for a medical man, whose whole vision is focused upon the Swiss Alps and Colorado, while searching for the most prominent climatic factors common to these elevated resorts, to lay the utmost stress upon rarefaction in accounting for their observed climatic benefits. But it would be also pardonable, in accounting for the climatic benefits observed in the dry Rio Grande valley and contiguous territory of West Texas, and in portions of Arizona within 1,000 feet of sea level—benefits apparently quite equal with those obtained in the somewhat cooler and sometimes drier altitudes of New Mexico and Colorado—should a medicine man of the Zuni Indians, with ample scientific information as to meteorological conditions, claim that "the *dryness* is the only important factor common to all" the Rocky Mountain slope, and that to their presence chiefly is due the proved efficacy of all this region.

⁶ The following extracts from the Encyclopædia Britannica, Vol. xvi, p. 125, Stoddart, Phila., will illustrate the point: "Thus the maximum

eration the question whether atmospheric rarefaction be a purely negative factor of climate, simply coincident with dryness in several well known mid-continental mountainous regions; or whether it may not, in advanced and in acutely progressing cases at least, be positively detrimental.

There have been several ingenious, not a few labored, and some positively unphysiological explanations offered by medical writers who have witnessed the beneficial influence of *dry* climates at high altitudes in their effort to account for the *assumed* benefits of a rarefied air and of lessened atmospheric pressure to the square inch. But whoever will read the list of general reasons why a given invalid may not go to an otherwise preferable high climate, as enumerated, with evident solicitude and after ample experience, by Dr. Denison, agreeing substantially with other authorities on the subject, will be apt to conclude that while the average patient who is in condition to travel may tolerate an elevation a mile above sea level it is nevertheless, when viewed with expert judgment, to very many a matter of serious hazard. The possible contra-indications are (op. cit. p. 14): 1. The coldest season of the year, *intensifying the effects of altitude too much* (italics mine) for those coming from warmer climes. 2. Advanced age. 3. A very excitable nervous temperament. 4. Some women, for a like susceptibility, and less adaptability to the change and to out-door life than men. 5. Valvular lesions, with rapid action of the heart. Diseases of the great vessels such as aneurisms. 6. Marked and extensive emphysema, pneumothorax and hydro-pneumo thorax. 7. *Active* pneumonia or *existing* hemoptysis. If the pneumonia or hemorrhage is recent the contra-indication amounts to little; if remote, to nothing. If there is reason for some doubt in any such otherwise favorable case, a gradual rise in elevation should be chosen (!). 8. High bodily temperature whether it be rather constant . . . or whether it be regularly vacillating . . . especially with suspicious laryngeal complication, or in so-called "catarrhal phthisis." 9. Extensive involvement of lung tissue in diseased action. 10. The stage of softening, if accompanied by high daily fever, or in one of decided hemorrhagic diathesis. "Quick consumption" with or without intestinal ulceration or albuminuria.

After reading such a list of exceptions from an advocate of high altitudes, who justly ranks among the ablest climatologists of his generation, it would seem indeed, a work of supererogation to argue that elevation *maybe* highly detrimental. Indeed, accepting the wisdom of the 7th and 8th contra indications quoted, it would appear superfluous to argue that aerial rarefaction must really be regarded a positive obstacle, and not an aid, in the arrest of the active progress of phthisis. My effort, then, shall be the far more moderate task (after briefly presenting a personal experience as an invalid) of maintaining the doctrine that *when the progress of pulmonary phthisis is arrested at a high altitude, this fortunate result is in no degree attributable to, but occurs in spite of the altitude.*

In the summer of 1890, being thirty-four years of age and engaged in active general practice, I suffered several pulmonary hemorrhages. The last, being quite profuse, was followed by fever and the formation of a small cavity in the apex of the right lung. Bacilli were found to be abundantly present in the

sputa. In October, a month later, I left my home, Mascoutah, Ill., and went to southwest Texas. During the first six months I remained seldom longer than two weeks in any one locality. During this period I traveled over the greater part of Texas lying west of the ninety-eighth degree of west longitude and south of the thirty-second parallel of latitude, and also over portions of southern New Mexico. East of the Pecos river I had regained my normal weight at the end of three and one-half months, but feeling sensitive to every cloudy day, though the sun is obscured in this region as little as in Colorado.⁹ I then went to El Paso for the sake of its still sunnier sky. The air there was ideally dry, and improvement in strength continued with each day. All cough had long since ceased, and expectoration was reduced to a minimum. Early March found me at Marfa, Texas, with an altitude of 4,700 feet. Here, as everywhere in my journeying, were to be found invalids, who, prompted by the benefits received by others, were also seeking a climatic cure. But here one day there was an overcast sky. A gusty March wind was blowing. Prudential considerations kept me within doors all day except for a fifteen minutes stroll, well wrapped up, in the course of the afternoon. Though at lower altitudes and sometimes at a lower temperature, I had, in the course of the preceding five months, repeatedly driven in the open air all day long and without any detriment whatever, I had the misfortune now, though exercising all reasonable precautions, to contract a cold with a tickling cough, due to a recurrence of irritation in the right apex; and during my remaining stay of a week this cough showed no indication of subsiding. Then I returned to El Paso, a thousand feet lower—3,700 feet above the sea. But this locality, which had seemed on my first arrival six weeks previously and which yet seemed, so far as dryness, temperature and sunshine were concerned, to be almost ideal in its winter climate, afforded no relief to the teasing, dry cough. Twelve days of thoughtful solicitude passed, when, after much hesitation, I resolved to return to the considerably less rarefied, if not quite so kiln-dried atmosphere east of the Pecos river and west of the 100th meridian. My train left El Paso in the afternoon, and halted for supper 4,400 feet above sea-level at Sierra Blanca. It is there begins the gentle downward incline towards the Pecos river, which is crossed at Pecos City about midnight. Falling asleep early, though still coughing, I knew nothing more till daybreak. But with the new day the cough was entirely gone.

I have not been able to account for the complete subsidence in one night while traveling down hill at twenty-five miles an hour, of an irritative cough of three weeks duration, on any other hypothesis than that it was due to a diminution of aerial rarefaction—to a restoration of the accustomed atmospheric pressure on a circumscribed acutely congested area of the respiratory tract. Here is the theoretical explanation:

A cupping glass applied to any surface of the body will produce a diminution of superficial air pressure corresponding in degree to the rarefaction of the air remaining within the cup. This diminished air pressure manifests itself by a suction exerted on the surface circumscribed by the rim of the cup. The force of this suction corresponds directly with the

⁹ Denison's Climatic Chart, op. cit.

diminution of the pressure of the surrounding atmosphere by virtue of the rarefied condition of the air within the cup. When the suction exerted by a cupping glass amounts to two and one-half pounds per square inch, then is manifested over one or two inches of surface the tremendous diminution of atmospheric pressure which, over every square inch of both the cutaneous and respiratory surfaces of the human body, is encountered at an elevation of about 5,000 feet above sea-level.

The phenomena consequent upon the application of a cupping glass to the surface of the body are evident and well marked, but they are limited in area. The same phenomena in kind would be produced over the entire surface, both cutaneous and respiratory, by a corresponding diminution of superficial air pressure on the human body, were it enclosed within an air-tight cabinet, the air being partially exhausted therefrom by means of a pump; and are often actually produced by ascending to a sufficient height in a balloon, or, as is more commonly the case, by rapid transit within a few hours or days from low levels to a higher elevation. The most marked phenomena observable on first glance are:

a. A dilatation and engorgement, sometimes to the point of rupture and consequent hemorrhage, of the capillary system of blood vessels, both on the cutaneous and respiratory surfaces.¹⁰ This diminution of superficial air pressure even though of only moderate degree, will at any point of localized irritation from whatever cause, produce congestion, and if long enough continued would necessarily bring about a transudation of serum into the surrounding tissues. This process may be cut short, if it has not gone too far, by a restoration of the accustomed pressure of the air.

b. Quickened and deeper respiration consequent on the diminution of oxygen per cubic foot of rarefied air, this diminution corresponding directly with the degree of rarefaction.

Man possesses wonderful adaptability to his surroundings. But his endurance of heat and cold, of hunger and thirst, of variations in atmospheric pressure ranging from fifteen and one-half pounds per square inch at sea level to less than ten pounds in the Andes and Himalayas, or less than five pounds in balloon ascents as experienced by Glaisher and Coxwell,¹¹—such extremes are endurable only as the individual approximates to a perfect physique and in direct proportion thereto. The fittest alone survive unaccustomed hardships of such character if suddenly imposed and carried to an extreme; the unfit, *i. e.*, physically weak, die.

Fully appreciating how much easier it is to point out the defects of an obviously erroneous theory than to build up another which may successfully withstand criticism, I shall nevertheless venture to formulate two propositions based on the foregoing data: the one explanatory of what I conceive to be the chief detrimental influence of markedly diminished air pressure in cases of unarrested pulmonary phthisis; the other illustrating the antagonism of pro-

nounced atmospheric rarefaction to nature's process of arrest as shown by pathological evidence *post-mortem*:

1. The healthy human body soon adapts itself to high altitudes if not too suddenly reached. But a superficial ulceration, with or without marked infiltration of the adjacent tissues, whether on the mucous surface of the respiratory tract or on the skin, is congested, and its normal tendency to repair is consequently hindered by any considerable diminution of atmospheric pressure. Hence it must be those writers who most enthusiastically praise rarefaction as a curative agent (instancing, however, in proof altitudes which are also very dry) nevertheless advise urgently against sending to high altitudes such invalids as are suffering from "*active pneumonia*," "*existing hemoptysis*," or with "*high bodily temperature*," or "*during the stage of softening*." Despite the recognized hazard, however, it is astonishing how many doubtful cases do well if only the air be sufficiently dry and the temperature sufficiently mild. As in morals, charity, so in climate, dryness covers a multitude of sins. For the rapid evaporation by a relatively dry air of the serum transuding from the capillary vessels of a superficial congested area, is nature's best antidote to the irritation (affording a safety-valve, so to speak, to the consequent infiltration) which a considerably diminished air pressure causes, more especially when coincident with an approximate saturation of the air with aqueous vapor; and this saturation occurs occasionally even in the driest regions.¹²

2. In his discussion of the mechanical effects of diminished air pressure Dr. Denison says (*op. cit.* p. 9): "The writer has always maintained and still holds that there is no cause for fear if proper precautions are taken as to extreme elevations and the character and stage of the disease existing in the lungs; *i. e.*, that there should be no spots of softened lung tissue (especially near the root of the lungs), which are insufficiently protected by nature's great conservative process—the deposition of fibrous tissue." A little farther on he adds: "Of course, in very acute conditions we are 'on the other side of the fence,' and it is *rest* which is needed."

It seems hardly necessary to formulate the evident and logical deduction from these statements. If "in very acute conditions it is *rest* which is needed"—and rest is certainly a condition indispensable to the speediest cessation of all inflammatory processes, how can "an increase both in frequency and in the depth of respiration" which "first" occurs "on the arrival of a healthy individual in a high altitude" (*op. cit.* p. 9), a phenomenon which is yet more marked in invalids with diminished breathing capacity—how can such an increase in respiratory activity fail to be detrimental *per se* in its effects on a case of pulmonary phthisis the progress of which has not been previously arrested? And if "the depo-

¹² The annual mean relative humidity of Denver, compiled from twenty years observations is noted in the Ninth Annual Report of the Denver Chamber of Commerce, 1892, as 45.5 per cent. of saturation. The warmer months—July to October inclusive—show a lower, and the colder months—November to May inclusive—higher per cent. of saturation than the remarkably low annual mean. We may find in this fact an additional possible explanation of the contrary fact that, previously pointed out from Dr. Denison, that a city may avoid coming from a warmer time may not resort to artificial means to prefer to a high altitude during the coldest season of the year. The personal experience of the writer (though from a moderate altitude) and Dr. C. T. Williams' opinion previously cited, would go to show that not merely cold and altitude, but these two in combination with a high per cent. of humidity, even if of only brief duration, form a combination calculated to be especially injurious to convalescents.

¹⁰ J. Mitchell Bruce, in discussing the Therapeutics of Air, (*Quinn's Dictionary of Medicine*, p. 19) says with reference to air which has been mechanically rarefied: "Inspiration of air which has been rarefied by one two-hundred-and-fortieth to one one-hundred-and-twentieth, *i. e.*, of an atmosphere, immediately causes the phenomena of inspiratory dyspnea; the thoracic viscera are congested and hemoptysis may result, for the effect may be regarded as that of dry cupping the pulmonary alveoli."

¹¹ C. Theodore Williams, *op. cit.* p. 133.

sition of fibrous tissue" be "nature's great conservative process," are we justified in limiting its purpose to the protection "of spots of softened lung tissue?" Its invariable deposition in all cases of either partial or complete arrest of tuberculous pulmonary processes, as shown *post mortem*, can receive no other adequate explanation than that it is nature's means of securing rest to the inflamed tissues—of placing them in splints to limit motion. But an increase in the frequency and in the depth of respiration, which immediately occurs to a much more marked degree than is the case with a healthy individual, on the arrival in a high altitude of an invalid with a relatively reduced breathing capacity, directly antagonizes nature's effort, by the deposition of fibrous tissue, to secure rest by limiting motion.

The very ingenious and logical line of argument advanced by Dr. Denison in favor of *cold* and of *rarefaction*,¹³ both of which are produced by elevation, is based chiefly upon his opinion as to the *modus operandi* of dry air, viz.: "In the writer's opinion the chief argument in favor of atmospheric dryness is based upon the *increased transpiration of aqueous vapor from the lungs*, in a degree according with the dryness of the air breathed" (op. cit. p. 3). And since, the percentage of saturation with aqueous vapor (relative humidity) being the same, a given volume of cold air contains a smaller weight of aqueous vapor (*i.e.*, a lower *absolute* humidity) than the same volume of warm air; and since, under the same condition, rarefied air will contain a smaller weight of moisture than an equal volume at sea level, it therefore follows, *the percentage of saturation being the same*, that cool and rarefied air contains less absolute humidity than warmer air at lower levels. And the breathing of such an atmosphere must consequently increase the transpiration of aqueous vapor from the lungs more than is possible at higher temperatures and lower altitudes.

The fact that on Pike's Peak, at least in the winter of 1883, the air was both relatively and absolutely more humid than at Denver (Denison's seasonal chart, op. cit.), despite its greater elevation by some 9,000 feet, and notwithstanding its lower temperature, demonstrates that the "tendency of mountain climates towards dryness rather than humidity" may be overcome by counter-tendencies, the causes for which it is not necessary here to discuss. So that were the premise beyond criticism from which is drawn the conclusion just cited, in favor of high altitudes by reason of the low absolute humidity claimed for them, the deduction would not apply in favor of *all* high altitudes, but only in favor of those elevations where the relative humidity is likewise low.

But the premise quoted, from which so important conclusions are drawn, is offered only as "the writer's opinion." As such it is entitled to the very highest consideration. There is indeed no writer on climate known to me whose unsupported opinion is entitled to more weight. But in the absence of demonstration its correctness may (and should) be questioned, if the conclusions logically deducible therefrom fail to harmonize with facts which are well established.

Let us hazard *per contra* the different opinion, which alone appears to harmonize with all the known facts

bearing on the subject, viz.: that the acknowledged influence of a dry air in retarding or arresting the progress of pulmonary phthisis be due *not* to "*the increased transpiration of aqueous vapor from the lungs*," which is but the exaggeration of a vital, physiological function pertaining to normal physiological lung tissue; but that, on the contrary, it be due to the rapid evaporation of serum transuding from the engorged superficial capillaries of certain circumscribed inflamed pulmonary areas, which rapid evaporation promotes nature's tendency toward limiting the infiltration and the extent of inflamed pulmonary tissue. And whether such circumscribed engorgement were, or were not, exaggerated by the reduced air pressure of a high altitude—equivalent on first arrival to the mechanical effects of a cupping glass—its diminution by reason of the absorbent properties of dry air could certainly not be regarded as a vital physiological process affecting chiefly the normal pulmonary tissue, but as *a process due to physical laws only—one affecting pathological tissue alone*.

And, upon such a supposition as a premise, it would follow that "*coolness or cold* as opposed to *warmth or heat*," and also "*rarefaction* as opposed to *sea level pressure*," would both be eliminated from the list of important climatic attributes, in so far at least as they affect the prime factor, *dryness*; for it is a fact thoroughly well established that the absorbent power of the air bears no definite relation to its *absolute* humidity, in the calculation of which cold and rarefaction are always important factors; but does correspond definitely with its *relative* humidity, taken in connection with the temperature, wind movement and the approximation to sea level. For, *as temperature rises the evaporative power of an atmosphere, whose per cent. of saturation remains the same, increases faster than the rise in the thermometer*.¹⁴ And it is equally true that, *relative humidity and temperature remaining the same, a given volume of air will absorb and retain more moisture at or near sea level than at any higher elevation whatever*, its capacity to absorb moisture diminishing as the altitude increases. Evaporation is also far more rapid during a brisk breeze than in calm weather, so that Parkes has laid down the rational proposition, acted upon by every weather bureau throughout the world, that "the degree of dryness or moisture of an atmosphere should be expressed in terms of relative (and not of absolute) humidity, and should always be taken in connection with the temperature, movement and density of the air, if this latter varies much from sea level."¹⁵

The important deduction then logically follows that though a particular high altitude resort may have a low relative humidity, yet the low mean temperature and the atmospheric rarefaction may be such as to afford a smaller capacity for the absorption of moisture by a given volume of air than would be the case in some locality nearer to sea level with a relative humidity somewhat greater, but with a mean temperature considerably higher and with a total annual wind movement materially greater.

It is not within the scope of this paper to institute comparisons between particular health resorts at high and low altitudes, or to make extended reference to any other factors of climate than those which are so intimately associated with the growing

¹³ W. Steffen of Davos, seems to have argued along the same line; his argument being combated by Dr. Julius Hann (v. Davos, in Buck's Reference Handbook of the Medical Sciences), but I have failed to secure his original discussion of the subject.

¹⁴ E. A. Parkes, op. cit. Vol. ii. p. 88.

¹⁵ Op. cit. Vol. ii. p. 87.

professional advocacy of high altitudes that they may not be eliminated from consideration. But it may not be out of place after presenting a table summarizing the weather observations at three tolerably widely separated localities of moderate altitude in West Texas to offer a few closing suggestions. Let it be remarked, however, in passing, that while it would appear from the evidence already cited that there is no causative relation whatever between absolute elevation and relative humidity, it can not be doubted that the air is relatively drier on a hill top than in the adjacent valley, or even very frequently on a house top than at the level of the ground. This difference is greater in proportion to the rain or snowfall, and to the impermeability or bad drainage of the soil. And since men occupy habitations located on the soil, and usually at a much lower level than the psychrometers of the Weather Bureau, there is a wide range for selection of a place of dwelling in a given region, and also of regions with no other apparent climatic differences than those pertaining to the rainfall, drainage and porosity of the soil.¹⁶

Altitude, Mean Temperature, Wind Movement, Precipitation, Cloudiness and Mean Relative Humidity of stations named, from 1877, for 10 years, 6 years and 8 years respectively.

Months.	San Antonio. Elevation 781 feet.				Eagle Pass. Elevation 800 feet.				San Angelo. Elevation 1,200 feet						
	Mean temperature.	Wind movement, miles per month.	Precipitation in inches.	Cloudiness in tenths.	Mean relative humidity.	Mean temperature.	Wind movement, miles per month.	Precipitation in inches.	Cloudiness in tenths.	Mean relative humidity.	Mean temperature.	Wind movement, miles per month.	Precipitation in inches.	Cloudiness in tenths.	Mean relative humidity
October.	70	4,276	1.99	4.3	69	72	3,717	1.92	3.8	64	65	5,986	2.99	4.1	69
Nov. . .	58	4,587	2.09	5.0	68	59	3,859	0.60	3.7	64	51	5,698	1.31	3.9	66
Dec. . .	53	4,832	1.76	4.9	70	53	3,316	1.19	4.5	67	45	6,442	1.47	3.9	65
Jan. . .	50	4,960	1.58	5.1	72	52	3,127	1.12	4.6	66	42	6,206	1.14	4.0	68
Feb. . .	56	4,503	2.13	5.4	68	57	4,199	0.97	4.2	61	43	6,285	1.14	4.1	64
March.	63	5,199	2.22	5.3	67	65	4,256	1.80	4.2	63	57	7,231	1.30	3.8	60
Six cool months.	58	28,657	11.77	5.0	69	60	22,774	7.60	4.2	64	51	37,948	9.35	4.0	65
April.	69	5,149	3.38	5.2	65	73	4,022	1.21	3.6	53	65	7,959	2.22	3.3	58
May. . .	75	4,820	3.31	5.3	70	80	5,518	3.61	4.2	63	72	8,021	1.32	4.2	63
June . .	81	4,582	2.70	4.5	69	86	5,431	2.13	3.2	59	89	7,253	2.67	2.6	60
July . .	83	4,172	2.84	4.5	64	87	5,075	3.34	2.8	55	82	6,565	3.47	3.1	58
August.	82	3,767	3.65	4.4	67	84	4,025	3.34	3.5	62	80	5,527	3.55	3.7	62
Sept. . .	77	4,000	4.21	4.4	70	79	3,550	3.51	3.0	64	73	5,607	4.36	4.3	66
Six warmer months.	78	26,490	20.09	4.7	67	82	28,521	17.37	3.4	59	75	40,935	20.59	3.7	61
Annual .	68	55,147	31.86	4.8	68	71	51,295	21.97	3.8	62	63	78,883	29.91	3.8	63

It is apparent from the foregoing table that of the three localities cited the first two are preferable in winter so far as temperature is concerned; but temperature being equal the drier the air the better. In summer on the other hand, the greater wind movement and lower temperature of the third locality commend it to favor. The writer does not wish to appear as instituting invidious comparisons between health resorts; for the climate of no city or town is comparable with that of the open country. It is living and, if possible, sleeping out of doors in the suitable climate which is of the greatest benefit. It is

¹⁶ The acting chief of the Weather Bureau in his letter transmitting the data above given says: "The averages given are for rather short periods and are therefore not to be considered as having a fixed or permanent value." As showing the correctness of this view with reference at least to one of the localities mentioned, I will only cite the report of the chief signal officer for 1885, Part I, p. 181, giving the mean annual relative humidity at Ft. Concho (San Angelo) from Sept. 1872 to Nov. 1879 as being only 51 per cent, while the table shows 63 for a different period. The precipitation for fifteen years and one month at the same place averaged but 19.02 inches annually according to signal service report, 1888, on the rainfall of the Pacific Slope and Western States and Territories.

not "roughing it," nor exposure to inclement weather and to hardships, which indeed must be carefully avoided by the invalid; but living every hour possible in the open air and avoiding so much exercise as to cause fatigue—this it is which enables the climate to arrest the disease and with equal step, build up the patient's strength again. Sleeping on a cot on the open veranda of a country house is specially to be commended. The invalid who has tried it for one summer will know how to appreciate its manifest charms and benefits.

Finally, when every symptom of disease has subsided and the strength is fully restored, it should be thoroughly understood by every patient that his return to a humid climate will, not *possibly* but *probably* rekindle the processes of disease with far more than their former intensity and far less power of resistance on the part of the patient. I am cognizant of too many instances of this kind not to lay special emphasis upon so important a matter. The restored patient if his condition had ever been a grave one must make up his mind philosophically to reside in a dry climate. But he may then if so disposed, remove to a higher altitude, always with an eye single to a dry atmosphere as the *sine qua non*. For it is the writer's opinion, which he contemplates personally acting upon, that when the progress of phthisis has been completely arrested the restored invalid may then with impunity remove to any very dry altitude, provided only the temperature in winter be not disagreeably low, and the air pressure be not so reduced as to excite fresh irritation in an incompletely healed focus of disease.

MENTAL ABERRATIONS.

Read before the Southeast Missouri Medical Association, at Charleston, Mo., May, 1893.

BY J. T. HALL, M.D.

FIRST ASSISTANT, ASYLUM NO. 1, FULTON, MO.

"Man is a harp, whose chords elude the sight,
Each yielding harmony, disposed aright.
The screws reversed (a task which, if He please,
God in a moment executes with ease).
Ten thousand thousand strings at once go loose,
Lost, till He tune them, all their power and use."

Thus sadly sang one of England's purest, sweetest poets, out of the sad experience of a life of alternating light and shadow, harmony and discord, now reveling in the loftiest flights of poetic fancy, the profoundest depths of spiritual experience; now groveling in darkness and despair, driving him to a desperate attempt upon his life, the light of reason finally going out behind a cloud of impenetrable gloom. This comparison of the human mind to a musical instrument, susceptible when attuned aright of the most delightful harmonies, but with "the screws reversed" its "ten thousand thousand strings" giving forth only jarring discord, is as strikingly true as poetical; of which Cowper's own life and experience furnish the most striking illustration. Between the extremes presented in this beautiful figure we find degrees of almost infinite gradation; sometimes but a single chord of the "ten thousand thousand strings" seeming to have lost its tension, the harmony of the instrument remaining unbroken to the most skillful observation until the pressure of some untoward objective circumstance or subjective condition sends forth the discordant vibrations of the string "gone loose."

It is not the purpose of this paper to attempt an inquiry into the etiology, pathology or therapeutics of insanity; but rather to present for your consideration some illustrations of varieties of mental abnormalities, with incidental reference occasionally to supposed causes, treatment and results, which it is hoped may not be devoid of interest to you. Every institution for the care and treatment of the insane will furnish in its population illustrations of those various degrees of mental aberration, from the inmate who camps upon the border line of reason, such as the general practitioner is constantly encountering outside the lunatic asylum, to the raving maniac; from the patient upon the ecstatic heights of maniacal excitement, to the one who sits wrapped in profound silence and melancholy, apparently (and sometimes really) all unconscious of the *non ego*, and even at times lost to self consciousness; from the sharpened and quickened intellect that surprises you by its repartee or flight of poetic fancy, to the hopeless and helpless dement who year in and year out prolongs an existence as uninterrupted as the life of the mollusk. But the saddest part of it, as usual, is that we do not see; that represented by the homes that have been desolated, by the heart burnings and heart yearnings occasioned by these separations. Yet even this dark cloud has its silver lining, which is reflected from the lives and homes made happy by the return of loved ones with health and reason restored. (A digression is suggested here which I will insert parenthetically, if for nothing else, to record an earnest protest against a disposition manifested in certain quarters to place eleemosynary institutions of the State of this character on similar footing with its penal institutions, or at best to compare them to "big boarding houses." When statesmen selected, it is presumed, on account of peculiar fitness from long experience in legislative affairs, as well as broad and philanthropic views upon social and economic questions, in their representative capacity of inquirers into the needs of the institutions of the State, and as advisers of the body in whose behalf they act, as to the legislation necessary for their fostering care, can see no higher function for its homes for the mentally afflicted than to suggest the "large boarding house" as the highest standard from which such institutions can appeal to the generosity of the State's benevolence; when it is suggested that an enterprise hitherto regarded as one of the State's noblest charities, which under its broad and liberal patronage, carefully and economically applied, has been within its last biennial period enabled to show a proportion of recoveries to admissions in excess of 45 percent., should hereafter be esteemed and provided for as "nothing more and nothing less than a large boarding house," the most charitable conclusion is—somebody has blundered. The acceptance of such views would imply not only a halt in the grand forward movement along this line that has marked this as an era of broad and practical philanthropy—a movement in which our State has taken its position in the front rank, but it would indicate a long step backwards towards the darkness out of which we have but just emerged, and would be suggestive of a return of those days and practices that consigned the indigent insane to the poorhouse with its chains and hopeless bondage, discreditable alike to the civilization and humanitarianism of our age.

Pardon this digression. But it has its object. To

the medical profession is largely due the advanced position of the present generation upon this subject; and to the medical profession the question may be safely appealed with the assurance that such backward step will *not* be taken.)

To resume the subject: One has said: "The brain is the site of normal mental processes." It may also as truly be said it is the site of abnormal mental processes; with a peculiar susceptibility, as already intimated, to variety and differences in degree in its manifestations of departure from the normal standard possessed by no other organ of the body.

The advantages of asylum surroundings and care for the successful treatment of mental disturbances have been too often and too clearly demonstrated to need reassertion. And yet, with many it is still looked to as the place of last resort, to be sought only when every other resource has been tried and failed.

When there is a more general appreciation of the fact that in the correction of these abnormal mental processes time is as important a factor as in the successful treatment of any other organic trouble, and perhaps even more so, it may be expected that even better results than those already realized will be attained.

To proceed with the presentation of a few individual cases illustrating some of the varieties of alienation, we will pass through the wards and I will introduce in the first place Miss J., æt. twenty years, admitted April 12, 1892, with a family history strongly indicating heredity—the mother and maternal grandmother having been insane. The supposed exciting cause as given in the accompanying history of this case is "hysterical epilepsy, religious excitement and menstrual irregularity." First manifestations two years previous. She was brought to the asylum on a cot, being much reduced by repeated attacks of facial erysipelas which recurred several times after her admission. The physical condition began to improve in three or four months; but even after the restoration of the general health, and the body became quite robust, the mind still continued a blank almost, and for months the lips were dumb. Thus the summer and autumn passed. In the early winter there began to be signs of a mental awakening. With some persistency answers in monosyllables could be had to questions. Then friends were encouraged to write to her, but at first it was with difficulty she could be induced to read the letters, and perhaps questionable whether she was capable; and possibly too, there began to be a painful self consciousness of the crippled condition of the mind. After awhile the countenance began to assume a brighter appearance, and then there was an effort to write, resulting in a letter somewhat as follows: "Dear Father: Where am I? I want to come home;" the entire letter consisting of a page of repetitions. A little later a letter to a brother consisted of several more sentences, in which the delusions that had perhaps characterized the early history of the case began to creep in. Still later she writes her father, asking many questions about home, in which there is a promiscuous mingling of the real and the unreal. Among others: "Is it true that I gave birth to a colored child before leaving home, or is it a horrid dream?"

Thus painfully groping through months of progress, scarcely perceptible from day to day, this

mind came out of darkness into the light, and is to-day the happy inmate of a home made happy by her restoration and return to it some weeks since. The family and personal history of this case, of course, makes a recurrence probable.

This is Mrs. J., who will meet and entertain you with easy and affable manner, generally bright and cheerful, but now and then with saddened countenance telling you something of her life history, which is a sad one, indeed. She has been an inmate since November, 1891, with a previous asylum history in another State. This is one of those cases in which hereditary predisposition outruns in the offspring the manifestation of the malady in the progenitor; for prior to the mother's mental unbalancing, a daughter aged sixteen, in an insane paroxysm took her own life, while only a few months ago the only remaining child, a daughter aged seventeen, in exactly the same manner, placing the muzzle of a pistol behind the ear, killed herself; the one in the State of Tennessee, the other at the home of a relative in the far northwest. Mrs. J. has some native artistic talent, which finds expression in a small way in decorations about her room, or in emblematic drawings of flowers, etc., to accompany her poems, of which she has written quite a number, many of them full of poetic sentiment very delicately expressed. It is often felt as a matter of regret that the institution is not provided with proper room and material for employment, instruction and development in such lines, which would doubtless often prove an invaluable aid to restoration. But we must pass on.

This is Mrs. B., an inmate since 1887 and prior to that in 1885. This is set down as a recurrent mania; this is the fifth attack, now more properly classified as a case of chronic melancholia. If you will stop for a few moments, Mrs. B. will tell you of the distressingly straightened condition of the institution, its resources exhausted, everything dependent upon her, and she unable to provide, and the inevitable result must be suffering and starvation.

Upon this same ward we meet Miss S., an inmate since 1888, another case of recurrent mania, now properly classified as chronic melancholia—a life likely to be spent within asylum walls. Miss S. has a style of correspondence all her own. Almost every week she hands the physician a letter folded in a particular way and addressed to her father, of which the following is in part a reproduction:

"Dear Father: I write to let you know my condition. I am waiting to come home. I never expect to marry any man but a dry goods merchant. Mr. B. has been the only one in contemplation.

"Such is adapted to my system until my fifteenth year: roast potato, roast mutton, rye bread, wheat biscuit, boiled mutton, cracked wheat, brown sugar, slow tea.

"Such is adapted to my system from my fifteenth until my twenty-fifth year: roast potato, rye bread, roast mutton, sweet cracker, hard boiled egg, cracked wheat, rice, whole peach, tea," and so on by decades or double decades to the one hundredth year, enumerating almost every conceivable article of diet. By way of explanation she goes on to say: "The egg and ham part at the same distance from the palm, that the roast potato begins. The slow egg goes to the outside edge of the arm, is joined to the egg that is with the ham, and is joined to the biscuit by the cracker"—and so on *ad libitum*.

Here we pass Miss W., an inmate since October, 1890, with a previous history of insanity for some years, and a family history of two paternal uncles, and each a son insane. A lady of the highest culture and intelligence, but reserved and as a rule, unapproachable, cold as an iceberg. The idea of persecution is dominant in this case, a very common delusion with the insane.

Mrs. L. here, aged fifty-eight, will always meet you with a smile, and with the lady-like courtesy and hospitality that always characterized her in her own home, will invite you to a seat and entertain you, perhaps, with the most fantastic stories, minute and circumstantial in detail, of how things were done and the social customs that prevailed in the time of King Solomon, of whom she is a daughter. Mrs. L.'s is a case of chronic mania; very violent at the time of her admission four years and more ago, but now entirely harmless and controllable. Since she was brought here, a sister has taken her own life by cutting her throat, the first manifestation to the family of her insanity.

This is Mrs. F., age thirty-five, a daughter of Erin; an inmate since 1886, her second admission. She has so long shown an almost normal mental condition that it is decided she may return home on leave of absence, to be discharged later if thought best. Her husband has been communicated with on the subject, and she is in daily expectation of his arrival, or a letter stating what day to look for him—when, to her chagrin, she receives a letter from him, saying he will come down to see her in the summer and maybe she can go home with him; and, as if to mollify the disappointment, proposes to send her anything in the way of wearing apparel she may want. The little woman is equal to the occasion, and her reply so full of pith and point is well worth preserving. She says:

"My Dear Husband: Goodness gracious, just to think that I have been waiting for your coming for me ever since it has come warmer, and to think that here comes a letter yesterday saying that you would like to come and see me this summer, and you thought I could come home with you if I would. Well, now! I'm paying no attention to that letter, but its looking for you I am, every day to come for me. So you come for me right away and not wait till summer; for when summer comes, why—it will be too hot then to go and live in the hot city, and then you will tell me—'wait to winter, 'till it be colder,' and you will come for me. As you always kept your promise yet to me, well, come for me now and keep the last promise; then you will not have to make one in summer to break in winter about coming to take me home anyway. . . . I would also like a pair of gloves and a veil too, to be ready to go home with you when you come. And if you only come to see me soon, I will tell you right now, you had better bring your spectacles with you, lest you can not see me very well. I remain your loving wife." L. F.

Here we meet a typical case of chronic melancholia. Mrs. McC., et. fifty-three (looks seventy) has been an inmate since 1889, with a previous insane history of four years. She would not change her position in twenty-four hours if not required, and every movement is very much against her will, and under protest. She only eats as food is placed in her mouth, and sits with woe-begone expression, downcast eyes and clasped hands, apparently wholly unconscious of

all that is passing around her. Everybody was much surprised some time since at her hasty flight just as an artist, with his camera, was ready to take the impression of the hall with its inmates; the object being the preparation of some views for exhibit at the world's fair.

Our next case, Mrs. K., recently discharged, furnishes us a very interesting history, with most happy and satisfactory results. Age thirty-seven, admitted Feb. 10, 1893. The accompanying history gives typhoid fever as the supposed predisposing and exciting cause. This is evidently an error; the patient had not had typhoid fever, but the case was doubtless one of cerebral lesion from the first, the presumption being embolism. There was a condition of general paresis. Gait unsteady, head inclined to drop over on chest except when held erect by special effort. Distressing delusions and hallucinations kept the patient in a constant state of alarm and excitement, rendering it necessary for some days and nights to keep her in a lock-bed. In her imagination her home had been desolated, her father and children meeting horrible deaths, while she had shamefully abandoned her husband, and gone with a less handsome man. In addition to this, reptiles were constantly crawling about her, and at any moment her handkerchief was transformed into a serpent. Both in the general parietic condition and in the character of the delusions this case bears a striking resemblance to one of chronic alcoholism. The bowels were found loaded and the accumulated feces dislodged with difficulty; the patient then put upon iodide potassium, in increasing doses. At the expiration of two weeks the first indications of improvement of a decided character were manifest, and after some days suddenly the cloud rolled away in a single night. Mrs. K. was comparatively well. She was detained a few weeks longer then discharged, and returned home March 28th, whence an occasional letter indicates the completeness of the recovery, and presents the picture of a grateful and happy family.

These are but a few cases, selected at random from the many, to illustrate some of the features of asylum life. With many there is nothing for the physician to do but to exercise a careful oversight of the general health, for even more than ordinary vigilance is required here, else he will be surprised by the invasion of some fatal disease. He must remember he has a household of helpless and irresponsible beings, in many respects like children; many of them incapable of telling their ailments; some inclined to exaggerate every little indisposition, and in the absence of such to manufacture for the occasion; while others, with the anæsthesia so common with the insane, are actually insensible to pain.

On the other hand, there is the inspiration to earnest study and effort found in the curability of many cases; and he is often rewarded in being the instrument of restoring broken households, and removing the saddest affliction that falls to the lot of man.

In order to encourage graduates of literary and scientific schools to undertake the study of medicine the Chicago College of Physicians and Surgeons offers ten scholarships, each of which is valued at \$100 a year for three years, to such applicants as present evidence of the best qualifications for medical study.

SOCIETY PROCEEDINGS.

Medical Society of the State of Pennsylvania.

Forty-third annual meeting was held at Williamsport, May 16, 1893.

President Dr. Henry L. Orth of Harrisburg, called the meeting to order at 10 A. M. Addresses of welcome were made by Mayor Elliott of the city, and Dr. H. G. McCormick, chairman of arrangements.

About 230 delegates and members registered.

The publication committee reported the issue of over 2,000 copies of the annual volume of Transactions in 1892 at a minimum cost. These were distributed to the members of the county societies, medical journals, other State societies, etc.

The committee on contagious ophthalmia reported progress showing the great need of action on this dangerous disease among children.

An amendment to the Constitution was adopted providing for a committee on scientific business to aid the committee of arrangements in providing papers and discussions for the meetings.

At the afternoon session Dr. W. S. Latta of Philadelphia, read the

ADDRESS ON MEDICINE.

He felt that it was an error in practice for a physician to announce himself as a specialist until he had practiced general medicine for at least ten years. Otherwise, he becomes one-sided. Again, the physician needs a knowledge of drugs, their uses and modes of administration. He would do well to dispense his own drugs. He must not be ignorant of hygienic matters, the causes of disease, etc. Must know what may be wrong with the plumbing, the mode of disposing of the garbage, water supplies, contagion, disinfection, all must be at his command. He is to prevent as well as cure disease.

While many of the members subscribed to these views, there was a decided difference of opinion as to dispensing drugs. The city practitioners mainly oppose it, though some preferred this plan, and the country doctors advocated it. Dr. Latta thought that forty drugs well selected would answer every emergency.

Dr. Edward Jackson of Philadelphia, read a paper on

THE IMPORTANCE OF EARLY DIAGNOSIS OF CATARACT.

and described the difference in surgical maturity and visual maturity. In the former the opacity is greater but it comes later. When the lens is firm it is easier of removal. However, if the other eye is going the operation becomes compulsory. When there is considerable vision, the patient has a power which cataract glasses can not give.

Dr. G. B. Massey of Philadelphia, read a paper entitled

PREVALENT ERRORS IN THE TREATMENT OF THE DISEASES OF WOMEN.

Among the erroneous views and practices of the gynecological specialists is the unquestioning acceptance of the new gospel that the pelvis of woman, unlike all other portions of human beings, is the exclusive domain of the surgeon. This error becomes practically apparent in the readiness with which speculae are employed with virgins; in the use of tenacule and sounds unnecessarily; and in harsh bimanual examinations. When a diagnosis of "displacement" has been made it is an error to correct the displacement by placing within the vagina a skeletal structure never contemplated by nature. The displacement has been caused by some other condition, and no true cure can result until that condition is first remedied. The causal

condition is usually an enlarged uterus from catarrhal or other inflammatory process, and is capable of being corrected. The use of artificial support within the vagina should be reserved for incurable cases.

When a diagnosis of dysmenorrhœa, or as I prefer to call it, menorrhœgia, has been made, it is an error to assume that the proper treatment is to dilate the cervix, for the theory of obstruction on which it is founded has no basis in fact. Since no accumulation has been found by careful observers, and so large an instrument as a dilator itself can be inserted within the canal, it is against reason that the proper course is to stretch the uterine canal until an audible snap is heard. The galvanic current is a better remedy.

My best reason for believing that repairing an old laceration will not relieve the suffering of certain cases is the evidence daily encountered that it has not done so. The real lesion was a chronic metritis, and unless this is cured the operation is, unavailing. When the metritis is cured the patient will not then care for the operation. As to the dangers alleged to exist in the scar tissue, it may be said that carcinoma is possible in irritative conditions, but healed scar tissue, whether consequent on the tear or the operation for its repair, is as harmless here as elsewhere in the body.

But all these questions are usually consigned to the limbo of "tinkering" by certain surgeons practicing as gynecologists who invariably and honestly find ovarian disease present in every case examined. Their first mistake is often in arriving at this diagnosis, since they mistake a tender uterus for a tender ovary. Having made the mistake of attributing the patient's suffering wholly or mainly to the uterine appendages rather than the uterus, the associated mistake follows of removing by abdominal section the slightly inflamed organs while leaving the more important seat of the disease as a source of continued misery. This particular procedure has become so fascinating to the rising generation of operators that our gynecological dispensaries and hospitals have become shambles, where women by the score are persuaded to undergo an operation that is unwarranted by sound judgment.

The error of a merely surgical ambition leads also to unnecessary operations for the removal of fibroid tumors that are amenable to electrical treatment. In spite of the adoption of the Apostoli method by Keith, the followers of his former surgical methods boldly cite his older views in support of bloody operations that are only warranted by the vaulting ambition of the operator. When distrustful of its propriety in a given case the alleged gynecologist still stands by his guns, and removes the ovaries in hopes of affecting the growth of the tumor.

An error of certain specialists dwelt upon finally in the paper was their expectation of the best results in electrical treatment without special knowledge and skill on the part of the operator; and the assumption of still others that electricity is a cure-all in gynecology.

Erroneous views of gynecology among general practitioners are of much the same nature as among specialists. As a consequence, their choice of consultants is often at fault, and they refer cases to surgeons that might be relieved by themselves in case they possess an acquaintance with the uses of electricity and allied remedies in these affections, or that are best referred to one who is still mindful of the relationships that subsist between gynecology and neurology.

Dr. E. E. Montgomery of Philadelphia, in discussion—had failed to see electricity reduce the size of a fibroid. It only had a temporary effect on such growths. Patients are rarely able to continue the treatment for years. But an operation

gives relief without delay. Surgery gives excellent results in a great number of cases.

Dr. H. A. Hare of Philadelphia, thought if electricity gave such decidedly good results in these cases why does it not act with equal results in other tumors, as of the nose, throat, etc.? Electricity is not equal to many drugs upon which all rely.

Dr. T. J. Mays of Philadelphia, read a paper on

REST IN THE TREATMENT OF PULMONARY CONSUMPTION.

It is a wasting of the whole body, the strength is easily dissipated. Energy is not distributed. Patient is spending his capital. Remedy is to stop this and build up the physiological capital. Requires air, food and rest. Exercise as too often urged in the open air exhausts the patient. In many cases he had seen marked improvement which was immediately lost by the resumption too early of activity.

Dr. H. G. McCormick of Williamsport, chairman of the legislative committee, reported the success of the bill for a board of medical examiners. It was not what had been asked for, but it was a great advance in medical education to obtain this. After July, 1894, no one could enter the practice of medicine in Pennsylvania unless he had attended three full courses of lectures in a medical college of at least five months in length, had a diploma and passed an examination before the board. After July, 1895, he must have attended four full courses, etc. This law is better than that of any State in the union. Dr. McCormick gave a history of the efforts during the last nine years to this end.

The report gave much satisfaction to the members, and a vote of thanks was tendered those who had worked on this committee, to the physicians, members of the legislature who had aided in the work and to certain legislators. The governor has since signed the bill and it will soon be in operation.)

Dr. W. M. Weidman reported additional monies obtained by his committee on the Rush monument fund.

A resolution was passed urging for more hospitals for the care of the insane.

On Wednesday, delegates were received from the New Jersey State Medical Society and the Pennsylvania Pharmaceutical Society.

Dr. J. W. Park of Harrisburg, read the

ADDRESS IN LARYNGOLOGY.

He insisted on the importance of voice training, begun early, especially in the public schools. Children should be taught to articulate correctly from the moment when they commence to talk. Breathing exercise is needed by all public speakers. The want of proper training is the cause of so much throat trouble with preachers and others who talk long at a time. Many fail because they do not get the proper pitch.

Dr. J. V. Shoemaker of Philadelphia, described and exhibited a number of new remedies for external application in skin diseases.

Dr. J. M. Baldy of Philadelphia, read a paper on

CARCINOMA OF THE UTERUS.

He urged the importance of making an early diagnosis, and then by an operation removing the disease while yet local. After the cachexia is shown there is no hope of cure. The symptoms are subtle, and rarely is the grave nature of the disease suspected though it is progressing. There is little pain, appearance of health, and often the only symptom is a slight uneasiness, a backache, etc.

Dr. C. R. Earley of Ridgway, insisted that the disease always was constitutional. Remove the tumor but the disease remains. Must treat the system. His remedy was arsenic and hemlock. He detailed cases where the best sur-

geons had diagnosed carcinoma and where it had been removed without an operation.

Dr. Jas. Tyson of Philadelphia, agreed that the difficulty as to diagnosis between carcinoma and adenoma caused delay, and it could only be made by the clinical condition.

Dr. G. G. Davis of Philadelphia, believed we may remove the disease by instituting constitutional measures.

Dr. Baldy in reply, said he regarded it as local at first. He had seen cases permanently cured after an operation, and the health completely restored.

Dr. S. Ayres of Pittsburg, gave an interesting account of cases of movable kidney. Nervous symptoms resulted, digestion was disturbed, pain resulted from twist or extension of the ureter, there is inability to sleep on the other side, etc. The cause may be congenital, falls, strains, etc. The prognosis is unfavorable. Supports fail. Cases have been benefited by surgery, as stitching the kidney to the abdominal walls. Dr. Hare mentioned a case where great pain was caused by the twisting of the ureter, simulating nephritic colic.

Dr. G. D. Nutt of Williamsport, reported the results in intubation, and detailed cases. The operation is often too late, hence the great mortality. While the tube aids the breathing, treatment is necessary, the inhalation of steam from slacking lime, etc., also the fumes of burned calomel. Rectal injections aid to keep up the strength.

On motion of Dr. Bishop of Harrisburg, a preamble and resolution were adopted asking the legislature to pass an act now before them to prevent the pollution of streams which are used for domestic water supplies, especially in view of the probability of cholera being introduced into the country.

(Unfortunately this legislation utterly failed.)

In the afternoon Dr. S. W. Dixon of Philadelphia, read the

ADDRESS IN HYGIENE.

Cleanliness in everything was demanded. The air is full of minute life. Build up the tissues and thus enable the system to resist the seeds of disease. The deadly water gas pervades the atmosphere. Parks are needed as lungs for the cities. Wide boulevards, vegetation should be encouraged, school houses need ventilation, the profession should always teach the advantages of hygienic surroundings.

Congratulatory telegrams were exchanged with the State Medical Societies of Illinois and Iowa.

The committee on nominations reported the following officers for 1894:

President, H. G. McCormick of Williamsport; treasurer, G. B. Dunmire of Philadelphia; secretary, Wm. B. Atkinson of Philadelphia.

Next place of meeting, Gettysburg.

Delegates to the American Medical Association and the State societies and censors for each district were elected.

Dr. M. Price of Philadelphia, read a paper on extra uterine pregnancy with a living mother and child at full term.

Dr. Jas. Tyson of Philadelphia, read a paper entitled: Heart Disease or Kidney Disease? showing how in several instances the symptoms were such as to indicate the presence of one but the results proved it to be the other, and *vice versa*.

Dr. John B. Roberts of Philadelphia, spoke on simplicity in the treatment of fractures. He regarded simple dressings, often without any form of splint, as less liable to displacement, easy of application, more readily changed; in short doing all the work without any cumbersome apparatus as was formerly employed. He discarded the primary bandage as useless, and illustrated his remarks in a very interesting manner.

Dr. H. A. Wilson spoke on suture of the tendo Achillis in deformities of the feet.

Dr. W. C. Hollopeter of Philadelphia, read a paper on

SCARLET FEVER AND ITS TREATMENT.

He believed great progress has been made in the prevention of the sequelae and the spread of this disease. Rigid bathing, innunction till desquamation has entirely ceased. Daily sponging with carbolated water or sublimate solution; but in many instances the caretakers fail to do it properly, so that it fails of its object.

Dr. Hare endorsed fully the carbolic innunction; the temperature falls under its use. Mild alkaline diuretics, spirits of niter, acetate of potassa. Acetamid is dangerous and needs care in its use. Sponging is excellent.

Dr. Tyson liked digitalis; in small doses it prevents nephritis. He had ceased the use of the coal tar derivatives.

Dr. I. N. Kerlin of Elwyn, reported on new hospital for the feeble-minded in the western portion of the State. \$250,000 had been appropriated by the legislature for the building, and in all probability an additional amount would be forthcoming as it may be needed.

Dr. J. B. Murdoch of Pittsburg, offered a resolution to oppose any change in the Code of Ethics of the American Medical Association, and after remarks from several members strongly favoring the resolution it was unanimously adopted, with instructions to the delegates of this society to oppose any changes.

THURSDAY.

Dr. W. Murray Weidman of Reading, read the

ADDRESS IN SURGERY,

taking the subject of railroad accidents. The treatment is the same as for such injuries by other causes, but the surrounding circumstances are vastly different. No nurses, no hot water, dirt everywhere, the assistants are grimy and filthy, there is no time to prepare. In many towns there are small hospitals which are an excellent aid in such cases. He alluded to hemorrhage as the most important trouble, and often the fear of this causes more injury by the efforts of the comrades to stop it even when slight. The tourniquet is applied so as to cut off the circulation when the amount of bleeding would have been trifling. He objected to delay in amputation, waiting to recover from shock when the operation had better be performed without delay. It increased the danger. He exhibited his emergency bag, always at hand loaded with what was needed, no time being lost in collecting the articles.

The address was so replete with valuable information, that a vote of thanks was tendered the speaker.

Dr. J. M. Batten of Pittsburg, spoke on Bright's disease.

Dr. Chas. K. Mills of Philadelphia, on insanity and quasi-insanity in children. It was an imperfect paranoia, but mania was the more frequent form. Such cases were less easily cured than adults.

Dr. John Curwen and Dr. I. N. Kerlin of Elwyn, agreed with Dr. Mills and mentioned cases of dementia which were regarded as imbecility, etc.

In the afternoon Dr. John Curwen read the

ADDRESS IN MENTAL DISORDERS.

He regarded first the bodily condition, next the influence of the emotions, passions, affections. There were two general conditions, exaltation and depression. Cases can only be treated individually. We can not formulate a course of treatment. The medicine and doses in each case vary. In excitement the primary indication is free purgation, calomel followed by Dover's powder. The sedative is afterwards decided by the susceptibility. Opium is objectionable. Atonic is far preferable. The pyrophosphate of iron with

gentian acts as a sedative. An occasional narcotic may be demanded. Amyl or paraldehyde are good. Bromide of potassium is objectionable, as it produces loss of appetite and depression often followed by excitement and violence. Here the only thing is to place the patient in his room and watch him. Milder cases may take exercise in the open air till the excitement disappears. Rye whisky is good as a sedative in many cases; use it till all excitement has been relieved, then withdraw it. He did not believe in the need of gradual withdrawal of whisky or such articles. He had never experienced any ill effects from the abrupt stoppage. Substitute a tonic and food. Never use large doses of whisky, and observe care with stimulants; say half an ounce to an ounce three times a day. These are rarely other than the asthenic type. The great need is sleep, to recreate, but narcotics, etc., do harm by interfering with digestion and assimilation. Divert the mind from all causes, emotions, etc., especially in cases of melancholy; inspire hope and faith.

Dr. T. D. Dunn of West Chester, read the

ADDRESS IN OBSTETRICS.

He alluded to anæsthetics in labor and the right to employ them, not only in operative procedure but in ordinary labor. Profound anæsthesia is rarely required. Relieve the excitement and thus prevent after trouble. Symphysectomy was reviewed and regarded as the proper method in cases where the diameters only needed a slight increase. Antiseptics were highly commended, not to be employed, as in some cases, to excess. In conclusion, he offered resolutions that in the opinion of the State Medical Society of Pennsylvania it was the duty of private practitioners to employ the same antiseptic precautions in private practice as in hospital work. These were adopted without debate.

Several papers were read by title, the authors not being present.

Dr. F. E. Stewart of Watkins, N. Y., was received as a representative of the New York State Medical Association.

The president appointed as the committee on scientific business, Drs. C. W. Dalles of Philadelphia, S. R. Gorgas of Harrisburg, etc., to aid in the work of 1891.

The president-elect then declared the society adjourned to meet at Gettysburg, May 15, 1894.

American Surgical Association.

Buffalo, N. Y., May 30, to June 1, 1893.

The annual meeting of the Association was called to order in the Alumni Hall of the medical department of the University of Buffalo, by the president, Dr. Nicholas Senn of Chicago.

Dr. M. D. Mann of Buffalo, delivered the address of welcome.

The president's address was next delivered by Dr. N. Senn.

A NEW METHOD OF DIRECT FIXATION OF FRAGMENTS IN COMPOUND AND UNUNITED FRACTURES.

The speaker said that while the adoption of rigid antiseptic precautions has reduced the mortality in the treatment of compound fracture from 50 to 70 per cent. to almost nothing, yet the mechanical treatment of compound and ununited fracture has undergone little improvement during the last decade. The principal object of the address was to make an earnest plea in favor of more frequent recourse to direct means of fixation in the treatment of compound and ununited fracture. The time is at hand when compound fracture should be treated upon the same principle as wound of the soft parts, viz: the bringing into apposition and holding in contact by direct mechanical

measures, the different anatomical constituents of the wound until the process of repair is completed. In oblique fractures of the femur, it is generally conceded that continued extension and external fixation do not succeed in preventing more or less shortening and angular deformity. Long continued extension is followed by temporary and often by permanent injury to the adjacent joints. Overriding of the fragments is often productive of harmful pressure upon important vessels and nerves. Displacement of the fragments and imperfect mobilization are the most important factors in the production of exuberant callus which so often impairs the functional result. The displacement of detached fragments in comminuted compound fracture is often not recognized and much less frequently connected without direct intervention, and thorough disinfection is frequently out of the question without enlarging the external wound and free exposure of the fracture. Long confinement to bed is detrimental to the general health and often the indirect cause of many fatal intercurrent affections. These evils attending treatment of compound fracture can be avoided in a measure by direct fixation of the fragments. This enables the surgeon to bring the fragments into accurate apposition and secure permanent retention, and it also enables him to disinfect every part of the wound and to arrest hemorrhage.

The history of direct immobilization of fragments was then reviewed. The different methods of suturing were then considered. The use of ivory cylinders and clamps was described.

The absorption of aseptic ivory and bone in the living tissues was then taken up. Investigation has shown that there is a limit to the absorption of aseptic absorbable bodies. The introduction of large and solid foreign substances overtaxes the absorption capacity of the tissues and either removal by operative treatment becomes necessary, or spontaneous elimination is sure to take place sooner or later. To overcome this objection the author recommended as absorbable, intra-osseous splints, hollow, perforated cylinders of bone. The use of such cylinders does not interfere with the early formation of the intermediate callus from the medullary tissue. Such cylinders should be made of the shaft of the long bones of young animals such as chickens, turkeys or rabbits. Experiments and observation prove that bone or ivory used in the direct fixation of a fracture can be safely left in the tissues with the expectation that the material will become encysted and remain harmless and that in the course of time it will be removed by absorption. Bone is absorbed more readily and in a shorter time than ivory. A hollow cylinder of bone inserted into the medullary cavity of a bone is removed completely by absorption in a comparatively short time. The same fate awaits a thin ring of bone embracing and holding in mutual uninterrupted contact two or more fragments in the treatment of compound and ununited fractures by direct fixation.

The most efficient way to prevent lateral and longitudinal displacement in oblique fractures of the shafts of the long bones is to bring the fractured surfaces in accurate contact and hold them in this position by an efficient absorbable circular support. The use of silver wire and other inabsorbable material for this purpose is objectionable. Catgut and other absorbable ligatures are not sufficiently durable. It had occurred to the author that such fracture could be retained almost to perfection after reduction by engaging the ends of the fragments in a ferrule or ring of bone or ivory. This will prevent overriding and undue shortening. Angular deformity and rotation can be prevented by appropriate external support. The results which have attended this method have been exceedingly satisfactory.

The method of preparation of the bone ferrule was described and a number of the ferrules of different sizes exhibited. Three cases were reported in which the method had been employed. Case 1 was an ununited fracture of the femur; direct fixation of fragments; union with fragments in good position.

Case 2 was an ununited fracture of the humerus resulting from extensive loss of bone; paralysis of musculo spiral nerve; direct fixation of fragments by artificial impaction and bone ferrule, aided by catgut sutures; secondary nerve suture. Case 3 was one of compound comminuted fracture of leg; fixation of tibia with bone ferrule; penetrated plaster of Paris splint; suppuration; efforts at repair.

The speaker then detailed his experimental work with the bone ferrules.

Conclusions:—1. Direct fixation of the fragments is indicated in all compound fractures in which perfect retention can not be secured by simpler measures, and in the treatment of ununited fracture, requiring operative interference.

2. This method is also justifiable in the treatment of certain forms of subcutaneous fracture in which reduction and retention can not be accomplished without it.

3. Free exposure of the fragments in compound fractures secures the most favorable condition for thorough disinfection.

4. Perfect reduction and direct fixation of the fragments are the most reliable prophylactic measures against delayed and non-union and deformity.

5. A compound fracture should be regarded in the same light as an injury of soft tissues and should be treated upon the same principles, viz: accurate coaptation of the different anatomical structures and perfect retention by direct means of fixation aided by an efficient external support.

6. Bone suture, in talis, bone and ivory nails do not furnish the necessary degree of support and immobilization in the direct treatment of fractures characterized by a strong tendency to displacement.

7. The solid intra-osseous splint of ivory or bone as advised by Heine, Langenbeck and Bischer is objectionable, because it interferes with the ideal production of the intermediate callous and its spontaneous removal is beyond the absorptive capacity of the tissues.

8. The hollow, perforated ivory or bone cylinder, devised by the author, answers the same mechanical purpose without the objections which have been charged against the solid cylinder.

9. The safest and most efficient means of direct fixation of oblique fractures is by a bone ferrule which must be applied in such a manner that it surrounds both fragments.

10. Such a circular absorbable direct splint prevents to perfection, lateral and longitudinal displacement.

11. Rotation of the limb below, and angularity at the seat of fracture must be prevented by a carefully applied circular plaster of Paris splint.

12. For fractures not requiring drainage, the entire wound should be closed by buried and superficial sutures, as the bone ferrule is removed by absorption.

13. In suppurating wounds the bone ferrule should not be removed until direct fixation has become superfluous by the formation of a sufficiently firm union between the fragments.

14. The external splint should be applied in such a manner that it does not require a change throughout the entire treatment permitting at the same time access to the wound should this become necessary.

15. Direct fixation of a fracture combined with perfect immobilization brings the different anatomic structures of the broken bone permanently into their former normal relations, preparing the way for the early initiation and speedy

consummation of an ideal process of repair and the realization of a perfect functional result.

16. Should further experience demonstrate that bone is not sufficiently absorbable, the same kind of ferrule can be made of particularly decalcified bone or chromacized catgut.

Discussion of Dr. Senn's Paper.

Dr. Roswell Park of Buffalo, said that in discussing the paper he was under the disadvantage of not having seen the author's conclusions. He thought the method might be practiced with advantage where there is much displacement and difficulty in maintaining the fragments in position. In two or three cases he had used Volkmann's method for dovetailing the fragments together with advantage. In some cases he had used chromacized catgut or silkworm gut with good results. He had used ivory except in the form of small pegs. In suturing the fragments through holes drilled through the bone it is often difficult to bring the lower end of the suture around and tie it. It is easier to pass the suture around the bone by means of a modified aneurismal needle. It seemed to him that the application of the ferrule of Dr. Senn would require considerable disturbance of the soft parts and might give rise to local neurosis.

Dr. F. S. Dennis of New York, said that in the consideration of the management of compound fracture and ununited fracture we can eliminate entirely the question of sepsis. The surgeon can employ any of the methods suggested without the fear of septic complications. The method suggested by Dr. Senn is without doubt excellent in every way, but we can probably arrive at some simpler method of treating ununited fractures. He had been in the habit of resorting to drilling of the bone and always with success. In some cases small ivory pegs have been driven into the drill holes. Another method to which sufficient attention has been given is that of tenotomy. This at once relieves the muscular spasm and gives comfort to the patient. There is then no muscle to contract and disturb the fragments. If physiological rest is thus secured there is less liability to non-union. In simple fractures it is not a bad rule to divide the tendons at once.

There is no question in regard to the development of malignant disease in ununited fractures. The speaker had seen some fifty cases of sarcoma develop as the result of traumatism in bone and these have usually been cases where there has been some movement in the fragments. Epithelioma has also been seen in cases where there has been a sinus running down to loose bone.

The amount of disturbance of the parts seem to be an objection to the use of the ferrule, but this might be obviated by dividing the ferrule into two parts and securing them together after application.

Dr. D. Forrest Willard of Philadelphia, remarked that at the Presbyterian Hospital of Philadelphia, Dr. Allis and himself had been using methods of direct fixation where there is great tendency to displacement. In order to facilitate the application of sutures he had had made drills with an opening extending through the drill, and through this the suture could be readily passed. This saves much time. He had seen a number of cases of Gluck's ivory insertions, but in every case with one exception the ivory plug had been discharged or was in process of discharge. The exception was a case where the ivory plug had been passed into a metacarpal bone.

The method of dovetailing referred to by Dr. Park is valuable. The fragments may be held together by the use of screws. Dr. Allis uses steel screws for this purpose which can be removed later if necessary.

(To be continued.)

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SATURDAY, JUNE 10, 1893.

THE FAR REACHING INFLUENCE OF ABNORMAL-
ITIES OF THE CLITORIS.

DR. R. T. MORRIS of New York, offers the following epigrammatic sentence regarding certain abnormal states of the clitoris: "The clitoris is a little electrical button, which when pressed by adhesions rings up the whole nervous system." He has found a large proportion of the highly evolved females—Americans and city dwellers—of his practice, having the glands clitoridis and the prepuce agglutinated by adhesions. He has seen reflex neurotic disturbances of serious as well as trifling nature that were removed by the freeing of the glands from those adhesions. He had a case of nymphomania of eight years' standing get well promptly after the breaking up of these adhesions, also a very serious epileptic case; also others of less gravity.

He refers to the experience of the late BAKER BROWN of London, who was expelled from the London Obstetrical Society in 1867, because he amputated the clitoris so very frequently. The mistake of MR. BROWN, according to the view of DR. MORRIS, did not consist in magnifying the strong reflex influence of the clitoris over the nervous life of woman; but it consisted in cutting that organ away entirely, when all that was probably required, in many cases at least, was to liberate it from its imprisonment within the prepuce. If Browns had pondered a little on the rôle that clitorideal adhesions play, he might have secured for his patients the same amount of benefit that he claimed to get from the operation of amputation, and at the same time retained his leading position among the British gynecologists. His energy carried him too far. The abnormal states of the clitoris may exist to a moderate extent without eliciting any reflex demonstration, but when they are extensive they are pretty sure to beget masturbation and attendant evils, from neurasthenic symptoms up to profound reflex neuroses. DR. MORRIS formu-

lates the following among his conclusions: "Preputial adhesions form a very common factor in invalidism in young women." If this is a true conclusion the time has fully come when there should be female physicians organically attached to all the female colleges and schools.

INTERNATIONAL CONGRESS AT ROME NOT
ADJOURNED.

DR. ABRAM JACOBI of New York City, has information from the Secretary of the Eleventh Congress that no postponement has been ordered. He has a letter as late as May 15, saying that the rumors, published from cablegrams purporting to come from Rome, are without foundation.

The Sanitary Section of the Congress will be chiefly if not exclusively devoted to the discussion of cholera and quarantine. Drs. KOCH and CUNNINGHAM of India are expected to take part in the work of that Section.

Those Americans who have been preparing to attend the Rome Congress need not cease those preparations until they hear of some official declaration to the effect that the meeting is off the card.

DR. JACOBI's statement may be seen in the *New York Medical Journal* for June 3, 1893.

THE MAINTENANCE OF PRIVATE ASYLUMS A CON-
STITUTIONAL RIGHT.

That the business of maintaining a private asylum for the treatment of mild forms of insanity, of inebriety and of persons afflicted with any mental or nervous disease, or who are suffering from the effects of the excessive use of alcoholic liquors, the supreme court of California declares, in the case of *exparte Whitwell*, just reported, is a lawful one, which can not be prohibited, either directly or indirectly. This decision is of all the more weight because the case was argued, both orally and in the briefs of counsel, with great learning and ability, and the court claims to have given to the questions involved the careful consideration which their importance demands.

The board of supervisors of San Mateo county, Cal., passed an ordinance March 16, 1892, to license, for purposes of regulation, the business of keeping asylums for the care of persons afflicted with insanity, inebriety, or other nervous diseases, which also provides that the board shall not grant a license to any person to conduct such business unless the walls of the asylum designated in his application are rendered fireproof by being constructed of brick and iron, or stone and iron, and the grounds accessible to patients are surrounded by a brick wall at least eighteen inches thick and twelve feet high, and the premises are distant more than 400 yards from any dwelling house or schoolhouse; and has a further provision that no license issued by the board shall

authorize male or female patients to be cared for in the same building. DR. WHITWELL was imprisoned for conducting an asylum comprehended in the ordinance, without securing a county license therefor. The case went up on a writ of habeas corpus.

The State may, of course, make proper laws for the care, government and safe-keeping of the unfortunate insane within its limits, says the court. This duty it owes, not only to those who are thus rendered incapable of taking care of themselves, but also to the community at large, the members of which are entitled to protection from the acts of persons not subject to the commands of reason. In the discharge of this duty the State has provided public asylums to which persons who are so far disordered in mind as to be dangerous to remain at large may, upon satisfactory proof of such condition of mind, be committed by the judge of a superior court; but it has made no provision at all for those of unsound mind who are not regarded as dangerous to themselves or the property or persons of others; and unfortunate persons belonging to this latter class are not to be denied the right to receive the patient attention, and often healing treatment, of a comfortable private asylum or hospital, if they or their kindred or friends are able and willing to incur the expense of such care and treatment. The business, therefore, of conducting a private asylum in which proper care can be given to such persons, by a member or member of the medical profession having experience and special skill in the treatment of such cases, is a necessary and humane one; and the right to maintain such an asylum or hospital, and to follow and practice this particular branch of the medical profession, cannot be prohibited or burdened with unreasonable and oppressive conditions.

In our opinion, continues the court, the ordinance under consideration imposes arbitrary and wholly unnecessary conditions upon the right to maintain such an asylum, an asylum in which only those afflicted with mild forms of insanity and the other diseases named in the ordinance are treated. While it is doubtless true that the board of supervisors of a county have the power, in the absence of any general legislation upon the subject, to prescribe by ordinance proper regulations for the protection of the patients in such an asylum from the danger which might result to them from the destruction of the asylum building by fire, still the requirement that such hospital or asylum shall be maintained only in a building constructed of either brick or iron, or iron and stone, without any reference to the size of such building, or the number of patients it is designed to accommodate therein, and without regard to other safeguards against fire with which it may be provided, is clearly unreasonable. It may be conceded that there would be less danger from fire in a

building of the character required by the ordinance than in one differently constructed; but experience has not shown that the danger from fire in such a hospital is such an imminent peril, when reasonable care is taken to guard against it, as to justify a requirement that such hospital shall be conducted only in a building made from the materials named in the ordinance. Of course, in the management of a hospital where insane persons are treated, it is necessary to have, and it must be presumed that there will be, a sufficient number of competent attendants to prevent danger or damage from any unreasonable actions of such insane persons. Without such attendants no such asylum or hospital could be properly conducted. The fact, however, that a person is suffering from an insane delusion requiring treatment does not necessarily make him dangerous to himself or others, or render inactive in him the ordinary instincts which prompt self-preservation. On the contrary, as was said by MR. JUSTICE COOLEY, "many insane persons, even after they become hopelessly so, are to all appearance perfectly harmless, and for years continue to discharge the common duties of life in the most regular and acceptable manner, being trusted by every one in those particulars to which the insane delusion does not extend. The law takes notice of the fact that in many cases the disease leaves the person in the responsible possession and control of most of his faculties, and that the same motives influence his action in the employment of them that influence those not afflicted." It is the duty of the superintendent or attending physician of such an asylum to ascertain the nature of the delusion affecting any person received for treatment; and if there should be one admitted afflicted with pyromania, or whose actions would for any reason be difficult to control, it can not be assumed that such person would not be properly guarded, or that the hospital would not be managed with that degree of prudence which would render the patients therein reasonably safe from danger on account of fire. Legislation of this character which imposes an onerous burden of expense upon a lawful and highly meritorious business, can not be justified by the mere possibility of the danger which it ostensibly seeks to avert. It must rest upon the fact that experience has demonstrated that such danger, in the absence of such legislative regulation, is one which may reasonably be anticipated as the probable result of conducting such business, notwithstanding the exercise of ordinary care to prevent it.

The provision that no asylum in which persons suffering from any degree of insanity are treated shall be permitted within 400 yards of any dwelling or school can not be sustained as a lawful police regulation. A law or ordinance the effect of which is to deny to the owner of property the right to con-

duct thereon a lawful business, is invalid unless the business to which it relates is of such a noxious or offensive character that the health, safety or comfort of the surrounding community requires its exclusion from that particular locality; and an asylum for the treatment of mild forms of insanity is not properly classed as such. If rightly conducted, such asylum would not render the occupation of dwellings or schools in its neighborhood uncomfortable to such a degree that its maintenance would be deemed a nuisance, or any impairment of the substantial rights of occupants of such dwellings or schools. It is not like a private asylum for the confinement of dangerous lunatics, or a hospital for the treatment of loathsome or contagious diseases; and the reasons which make it necessary and proper to exclude from the thickly settled portions of cities and towns slaughter houses, soap factories and tanneries, with their offensive smells, magazines for the storage of powder and powder mills, with their attendant dangers, or any business or occupation which seriously interferes with the health or comfort of others if permitted in such localities, do not apply to a hospital whose inmates are harmless, although insane. It is possible that the maintenance of such an asylum would be to some people in its vicinity disagreeable and annoying in the sense that it would be more or less repulsive to them, but this is not enough to justify a regulation like that under consideration. There are many unpleasant, and even annoying things which must be borne by persons living in a state of organized society, in order that others may also enjoy their equal rights under the law.

This ordinance further denies to any one the right to conduct such an asylum unless the building or buildings used for that purpose, and the grounds to which the insane persons may be allowed access shall be surrounded by a brick or stone wall at least twelve feet high and eighteen inches thick. The erection of such a wall would be costly, rendering the buildings and surrounding grounds uninviting and unsightly to the eye, and would be a manifest injury to the unfortunate persons placed therein for care and treatment. This requirement of the ordinance can not be defended upon the ground that it is reasonably necessary for the protection of the public. Whatever justification there might be for such a provision if applied only to a private asylum in which dangerous lunatics are to be confined, it is, plainly unreasonable when applied to a hospital of the character maintained by the petitioner, where only persons suffering with mild forms of insanity and who are harmless are received. Such persons, if properly attended, do not require prison walls to restrain them, and it would be barbarous and inhuman to subject them to such treatment. The board of supervisors of a county, or the legislative depart-

ment of any city or town in which such an asylum is erected, may undoubtedly provide by ordinance that patients therein shall not be permitted to leave the grounds upon which it is erected unless accompanied by an attendant, and may impose a penalty upon the superintendent or keeper of such asylum for a failure to conform to such regulation. Such an ordinance would be reasonable, affording all necessary protection to the public, without conflicting with the rights of any one.

The ordinance further provides that only one of the classes of persons therein mentioned shall be treated in the same building, and that a separate license shall be required for the treatment of each of the diseases named, and that male and female patients shall not be "cared for or treated in the same building." This provision is clearly invalid. The treatment of inebriates and insane persons, and of mental and nervous diseases not amounting to insanity, is a special branch of practice in the medical profession, and no reason exists why a physician desiring to maintain an asylum or hospital for the treatment of such cases should be required to erect separate buildings for the treatment of persons suffering from each of such diseases. Such a requirement is an unnecessary interference with the business of maintaining such an asylum, without any corresponding benefit to the public. If it be said that the welfare of the patients may demand this separation—that persons suffering from nervous prostration, for instance, should not be treated in the same building with the insane—the answer is that this is a matter which may be safely left to the judgment of the physician, whose business it is to treat such cases and whose education and experience, it must be presumed, qualify him to superintend such an asylum. The power to pass upon such a question has not been committed to boards of supervisors of the different counties, and such a regulation of the manner of conducting the business of maintaining such a private asylum is therefore unauthorized and void. In relation to that part of the ordinance requiring the separation of the sexes, it is sufficient to say that the admission of male and female patients to a private asylum or hospital conducted in one building is not immoral *per se*, nor can it be made so by any legislative declaration.

It is unnecessary to further discuss the provisions of this ordinance or to pass upon other objections which have been urged against it, concludes the court. Viewed separately, we think each provision discussed in this opinion invalid, and when the ordinance is considered as a whole, the invalidity of each provision becomes more plainly apparent.

ON BICYCLING FOR WOMEN.

DR. B. W. RICHARDSON speaks favorably, in the last issue of his *Asclepiad*, of the wheel as a means of exercise for women grown. For growing girls, or in fact for children of either sex, much cycling is not commendable. He holds that girls should not begin to ride regularly before they are seventeen years of age, and not then even, if they are not well built and strong.

But for women he believes the wheel has positive advantages. For example: "It insures a quick and sure cultivation of the senses, it leads to a good and healthful exercise of the muscles, it causes a fine expansion of breathing, it causes the lungs to inhale pure air, it quickens the circulation, and it brings to the mind a free and wholesome change of scene, which is a tonic of tonics to the depression incident to sedentary monotony." DR. RICHARDSON is very particular to have his disciples sit straight up on the seat or saddle, and to have the dress loose about the waist and chest,—this latter being of itself no slight gain to some of the tightly corseted members of the fair sex—and to take the exercise with a view to a pleasant outing rather than to a test of endurance.

The bicycle is preferred for women by DR. RICHARDSON over the tricycle, especially if the former be rigged with a seat rather than a saddle. The readiness with which the riders can mount and dismount, when using a wheel of that description, will become quite a drill in ease and gracefulness, especially if they learn to ride upright and keep their attention alert to the sights and events through which they move.

BOOK REVIEWS.

DISEASES OF THE RECTUM AND ANUS; THEIR PATHOLOGY, DIAGNOSIS AND TREATMENT. By CHAS. B. KELSEY, A.M., M.D., New York, Professor of Diseases of the Rectum at the New York Post-Graduate Medical School and Hospital; late Professor of Diseases of the Rectum at the University of Vermont, etc. Fourth Edition, revised and enlarged. With two chromo-lithographs and one hundred and sixty-two illustrations. Octavo, 496 pages, extra muslin, price \$4.00. New York: William Wood & Company. 1893.

This work has been thoroughly revised and brought up to date and this process has evolved so many alterations and additions that the entire book has been reset and rearranged to a certain degree as can be seen by comparing this issue with that of the former editions.

There are eighteen chapters. The first chapter concerns the anatomy and physiology of the rectum and the anus. The second chapter embodies the general rules regarding examination, diagnosis and operation. In order to eliminate errors and to reach a correct diagnosis the author adopts and advises a routine method of anamnesis and examination. The only time our author failed to obtain permission to make an examination was in the case of a foreigner who had entirely too great a respect for the doctor to allow him to do such a thing, while the doctor had too much respect for himself to treat a patient without

knowing what was the matter. In the chapter on hemorrhoids the following is said relative to Whitehead's operation: "The method seems, as I predicted when it was first made known, to have lasted a short time as a surgical curiosity, and now to be almost abandoned." He objects strongly to the performance of this operation for this reason, among many others, that the success depends entirely upon securing union of the adapted surfaces by first intention and failure in this means bad stricture of the rectum.

In the chapter on non-malignant ulceration we are somewhat chagrined at reading of tubercular ulcers and scrofulous ulcers; one being said to be due to the actual deposit and softening of tubercle, the other one being a simple ulceration without any actual local tuberculosis, modified in its course by the patient's general condition of malnutrition. There is some tendency to similar heterodox pathology visible in the consideration of rectal tubercloses; and this subject is not treated with that thoroughness and detail that is grounded on a correct and vivid understanding of its pathology; exact diagnosis of this disease by means of microscopical diagnosis is not fully dwelt upon. In the chapter on non-malignant stricture of the rectum we fail to notice any reference to the recent work in which it has been shown that in the female, stricture of the rectum may develop from suppurative and other processes in the vulvo-vaginal glands from which the perirectal as well as the structures of the rectal wall are attacked by direct continuity of tissue.

The consideration of carcinoma of the rectum closes without any exact and definite rules and indications being formulated as to the employment of the numerous methods of operating now in vogue.

Throughout the book the number of illustrative cases recited at some length might seem unnecessary in many places. The index is rather brief and also incomplete; thus tuberculosis of the rectum can not be readily referred to because the only reference given is found under ulceration. The illustrations are many of them quite indifferent; thus Fig. 3 on page 304 labeled Esthiomene (Taylor) is certainly not satisfactorily reproduced; and Fig. 117, stricture due to plastic exudation, can certainly not be considered a success. On the whole, however, the publishers' work is fairly well done.

The book embodies a fairly full exposition of the treatment of the diseases of the rectum and the anus; it is also quite complete in the consideration of symptomatology; its principal weakness is shown in the parts devoted to the pathology and the morbid anatomy and to the diagnosis of rectal diseases. It is also quite apparent that condensation and a more definite and precise arrangement would make it more valuable, especially to the student.

INTERNATIONAL CLINICS; a Quarterly of Clinical Sections on Medicine, Neurology, Pediatrics, Surgery, Genito-Urinary Surgery, Gynecology, Ophthalmology, Laryngology, Otology and Dermatology, by Professors and Lecturers in the leading medical colleges of the United States, Great Britain and Canada. Edited by JOHN M. KEATING, M.D., LL.D., Colorado Springs, Col.; JUDSON DALAND, M.D., Philadelphia; J. MITCHELL BRUCE, M.D., F.R.C.P., London, Eng., and DAVID W. FINLAY, M.D., F.R.C.P., Aberdeen, Scotland. Vol. iv. Second series, 1893. Philadelphia: J. B. Lippincott Company. Pp. 400.

The last volume of this series has fifty-two contributors on ninety-three topics. New York is represented by twenty writers; Pennsylvania, eleven; Great Britain, eight and Illinois, four.

The book opens with a picture and sketch of Dr. Henry Ingersoll Bowditch, by Dr. Frederick I. Knight who was a student, and later on an associate of Dr. Bowditch. It is

full of characteristic reminiscences and authentic biographical data. Such useful lives as are portrayed here are a help and an inspiration to those who follow in their footsteps. The medical world is too indifferent toward keeping alive the memory of its great dead, while law and religion are filling the niches of fame with monuments to their leaders.

A thoroughly valuable article by Dr. Thos. J. Mayes on angina pectoris sets forth an intensely interesting reposition of the subject, both as to the etiology and the treatment. The theory of the increased alkalinity of the blood and the consequent uric acid irritation of the nerve supply of the heart is ably and logically supported. His résumé of the therapeutics of the disease is very complete and satisfactory, but in the last three lines on page 29 he accidentally reverses the meaning of the author he has just quoted.

In a paper on fatal cases of intestinal obstruction in which there were simple dilation and hypertrophy of the large intestine, Dr. W. B. Hadden cites three cases and their autopsies. Two were operated upon. Opium was given to one, oil enemata to all, and a catheter was passed into the rectum of one, an infant. Large injections of glycerine and water were not tried or suggested. Enormous distensions and hypertrophy of the bowels were found. Kneading or massage of the lower part of the abdomen is advised, with large doses of oil, and copious enemata by the long tube. Drastic purgatives are avoided. Other means failing, the distended sigmoid flexure must be exposed by an incision in the middle line below the umbilicus, to rectify any misplacement and to force the feces through the anus, or failing in this, to make an artificial anus.

Dr. H. H. Mudd presented in his clinic two cases of appendicitis cured by operations. He says: "It is true many cases recover without operative measures, the necessary treatment being rest in bed, attention to the bowels, and moderate diet—the abscess, if there be one, opening into the bowel and discharging through the intestine. Induration and thickening about the head of the colon do not necessarily imply suppuration, for not infrequently the inflammation subsides without the formation of an abscess. It must be admitted, even by the most conservative, that operative interference in these cases is very generally judicious, conservative and efficient."

Dr. Wm. H. Porter goes elaborately into the dietetic as well as the medicinal management of rheumatism after a most scientific discussion of the etiology and pathology of the disease. He follows along Clark's method of medication. He does not accept the theory of the bacterial origin of rheumatism, but regards it as resulting from false feeding and a faulty digestion and assimilation. He calls attention to the fact that unless free mercurial catharsis precedes the exhibition of the salicylic compounds they often appear to be absolutely worthless.

Dr. W. W. Keen gives his views on the necessity of an early operation in acute appendicitis and describes his operative treatment. Instead of following Willard Parker's rule of waiting to operate between the eighth and twelfth days when 68 per cent. of the patients would die, he follows Fitz in operating on the second or third day.

Dr. G. M. Hammond has an instructive talk on facial paralysis with illustrations of two cases. He makes clear the differential diagnosis between the various forms, due to the different situations of the lesions.

Dr. Balzer of Paris says: "Any of the antiseptics may succeed in the treatment of chancre. The rapid and complete destruction of the ulceration by caustics, antiseptics, rest and treatment by tonics is the sum total of the treatment of soft chancre."

Dr. G. M. Leferts prefers nitric acid on a cotton holder

for cauterizing hypertrophies of the turbinates. He declares that "the treatment of atrophic rhinitis is a hopeless one."

No one who reads these volumes can help being a better physician for it. Some of the lectures are replete with the most carefully prepared and most recent information. The best work seems to have been done in the departments of general medicine and surgery. The specialists seem to have written their articles in a rather perfunctory manner.

NECROLOGY.

DR. CHARLES H. PINNEY of Derby, Conn., died of anemia at Evanston, Ill., May 16, 1893. He was born at New Windsor, Conn., April 25, 1831. He began the study of medicine when seventeen years of age. He spent three years at Harvard College, and graduated from the College of Physicians and Surgeons, New York, in 1853. He was for some time a private student of Willard Parker and Robert Watts. Thirty-nine years ago last month he married Miss Mariah Watson, a niece of his first preceptor.

Dr. Pinney was an early member of the American Medical Association, and he has taken much interest in the work of other societies. He had an extensive practice and was much respected in his profession, but he was much more than a prescriber of physic. He was a member of that class of doctors who are respected as men, beloved as friends, and honored as leaders in the elevation of social standards. With his wife, who entered heartily into his studies, he made many trips to Europe, and there became a connoisseur in art. His private art collection is a valuable one.

On the 11th of last September his buggy was run down by an electric street car. He was dragged some distance and severely injured. He has since that time had several intestinal hemorrhages. That he might have a much needed rest, and at the same time visit the World's Fair and attend the meeting of the American Medical Association, he left home with his wife. On their way west he was again weakened by loss of blood. They reached the home of a relative in Evanston where he rapidly sank to rest.

His remains were taken to their late home. Besides his widow he leaves an only son, Dr. Royal Watson Pinney, who for the past three years has been associated with his father in practice.

DR. WILLIAM LEE, formerly for many years the librarian of the American Medical Association, died at Washington, D. C., March 2. He was born in Boston, Mass., March 12, 1841, a descendant in the seventh generation of John Lee of Agawam. In 1861 he served a short time as medical cadet, and the year following as an assistant in the Hospital for the Insane at Washington. In 1863 he obtained his medical degree at the College of Physicians and Surgeons, after which he became a Bellevue interne, enjoying a memorable service at the Charity Hospital during the stirring times of the "draft riots," and taking the service at the Retreat for small-pox long enough to become himself the victim of a varioloid attack. At Bellevue Hospital he did his full share of duty in caring for his colleagues who were down with the typhus fever in a continuous series for several months. In 1865 he made his permanent home in Washington, and in that same year became a lecturer on microscopic anatomy in the medical department of Columbian University. Later he became the professor of physiology. He was one of the editors, for one year, of the *National Medical Journal*, and a member of the local board of health. He was a physician to the Columbian Dispensary for a number of years. He was a member of the Clinical and Pathologi-

cal and District Medical Societies, being last year the president of the last named body. In life he had expressed to his wife and friends a desire that his body should be cremated, when the end should come. His wish was complied with and at a crematory in Baltimore the mortal part of this sterling and amiable gentleman and physician was transformed into ashes. Exceptionally favored by nature with an attractive personal appearance, he added to it a gracious yet grave address; he was first admired as a stranger; then as an acquaintance and friend steadfastly adhered to as with hooks of steel. The natural bent of his mind was conservative, yet few men have been more anxious to do full justice to the true improvements of his art, as they have come along year by year since the date of his settlement in professional practice, nearly thirty years ago. Of his performance of duty as an officer of the Association, only words of praise can be said by his associates.

SELECTIONS.

THE RELATION OF PELVIC DISEASE TO PSYCHICAL DISTURBANCE IN WOMEN.—George H. Rohé reported to the recent meeting of the American Association of Obstetricians and Gynecologists the results of his examination and treatment of pelvic diseases among insane women in the Maryland Hospital for the Insane. Upon the supposition that mental disorders, while not necessarily dependent upon the existence of previous pelvic disease, may be aggravated by such a condition, thirty-five women were subjected to a vaginal examination, and of this number twenty-six were found to be suffering from some form of pelvic disease or abnormality. In some cases that were not examined nor suspected of having disease of the genitals, an autopsy revealed such lesions. Eighteen cases were selected for operation, and the majority of these had the appendages removed. Sixteen of these cases recovered from the operation; three of them have been discharged from the hospital apparently well both physically and mentally. In ten, considerable improvement followed the operation in both physical and mental conditions, and in three the operation was of too recent date for the expression of any conclusion.

Apropos to the above report may be mentioned the fact that similar treatment has been extended to some of the inmates of the Norristown Asylum (*Medical and Surgical Reporter*, December 31, 1892), and among thirty patients examined by Dr. Maria B. Werner, the great majority had positive and easily recognizable disease of the pelvis, some cases requiring prompt operative measures. While the mental condition of some patients has not been at all improved by the cure of pelvic disease, on the other hand some insane women have been restored to their normal mental condition, and whatever may be said pro or con about this procedure, the results seem to show the truthfulness of Dr. Rohé's concluding remark, that we are required "in the name of science and humanity to give to an insane woman the same chance of relief from disease of the ovaries and uterus that a sane woman has."—*University Medical Magazine*.

TUBERCLE BACILLI IN LYMPHATIC GLANDS.—Pizzini reports a series of experiments which show that virulent tubercle bacilli may exist in lymphatic glands of persons showing no other tubercular lesions. These glands, taken from persons who had died from different diseases, were inoculated into guinea-pigs, and it was found that in forty-two per cent. tubercle bacilli were present in the glands. The author believes that tubercle bacilli may readily pass through the epithelial lining of the air-passages, reach the lymphatic glands and there remain quiescent, preserving, however, their virulence and in condition at any time to infect other tissues. The bronchial glands were by far the most commonly affected. In no case did he find any bacilli in the mesenteric glands.—*Boston Medical and Surgical Journal*.

MISCELLANY.

AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS.—Seventh annual meeting will be held at the Four Seasons Hotel, Harrogate, Tenn., Tuesday and Wednesday, June 20 and 21, 1893.

NEW HAMPSHIRE MEDICAL SOCIETY.—One Hundred and Second Anniversary Meeting, Monday and Tuesday June 19 and 20, 1893, at Concord.

PAN-AMERICAN MEDICAL CONGRESS—SECTION ON GENERAL SURGERY.—The Section on General Surgery extends a cordial invitation to all medical gentlemen engaged in the practice of Surgery; as teachers or practitioners in any of its branches, to participate in all its meetings, and contribute papers for the general information.

Such papers should conform to the requirements, as set forth in the general regulations of the Congress.

In view of the wide extent of the constituency of the Congress and the varied human environment necessarily under observation, it is suggested that the topic of endemic or surgical diseases prevalent in each country might fittingly receive a large share of attention from the members of this Section; but carefully written papers upon *any* topic connected with surgical bacteriology, surgical pathology, or operative surgery of the regions will be welcomed by the Section.

JOHN B. HAMILTON, *Executive President*.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from May 27, 1893, to June 2, 1893.

First Lieut. William F. Lewis, Asst. Surgeon (recently appointed), will proceed from Kinston, N. C., and report in person to the commanding officer, Ft. Assiniboine, Mont., for duty at that station.

Capt. Curtis E. Price, Asst. Surgeon, is granted leave of absence for four months, on surgeon's certificate of disability.

Major John Brooke, Surgeon, is relieved from duty at Ft. Leavenworth, Kan., and will repair to Philadelphia, Pa., and enter upon temporary duty as attending surgeon and examiner of recruits in that city.

Capt. William C. Shannon, Asst. Surgeon, now in this city, is relieved from further duty at Ft. Apache, Ariz., and will report in person to the Surgeon-General for duty in his office, vice Capt. Harry O. Perley, Asst. Surgeon, who at his own request is relieved from duty in that office, and will report in person to the commanding officer, Plattsburgh Bks., N. Y., for duty at that station.

Capt. William C. Shannon, Asst. Surgeon, is relieved from further duty under the intercontinental railway commission, appointed under the provisions of the act of Congress approved July 14, 1890. By direction of the president.

Lieut.-Col. William D. Wolverton, Deputy Surgeon-General U. S. A., is granted leave of absence for one month.

Capt. Richard W. Jobson, Asst. Surgeon, is granted leave of absence for fifteen days, to take effect upon his relief from duty at Ft. Bowie, A. T.

Major D. G. Caldwell, Surgeon U. S. A., is hereby granted leave of absence for twenty-five days, to take effect on or about June 5, 1893.

OFFICIAL LIST OF CHANGES in the Medical Corps of the U. S. Navy, for the Week Ending June 3, 1893.

Medical Director F. L. DuBois, from the "Philadelphia," and to the "Chicago."

P. A. Surgeon T. C. Craig, from the "Boston," return home and three months' leave.

P. A. Surgeon E. S. Bogert, from the "Philadelphia," and to the "Boston."

P. A. Surgeon E. R. Still, from Norfolk Hospital, and to the "Chicago."

P. A. Surgeon J. F. Uric, from the "Chicago," and waiting orders.

Asst. Surgeon M. S. Guest, from the "Franklin," and to the "Philadelphia."

P. A. Surgeon F. W. F. Wieber, ordered to Naval Hospital, Norfolk, Va.

Asst. Surgeon L. W. Spratling, from the "St. Louis," and to New York Hospital.

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ADDRESSES.

A BRIEF REVIEW OF SOME OF THE RECENT PRACTICAL ADVANCES IN MEDICINE AND THERAPEUTICS.

Being the Address in Medicine before the American Medical Association, June 6, 1893.

BY H. A. HARE, M.D.

PROFESSOR OF THERAPEUTICS IN THE JEFFERSON MEDICAL COLLEGE.

The function of the member of this Association who is called upon to deliver the annual address in medicine is not to give in detail the course and results of laborious laboratory investigation nor to weary his hearers with long reports of cases. It is rather his duty to present as far as lies in his power certain broad views of the present status of the non-surgical side of our work as doctors of medicine.

The consideration of one particular field of work is also out of place and I have therefore decided that a brief and necessarily imperfect discussion of the present status of therapeutics and diagnosis would enable me to fulfill, to some extent at least, the duty which has devolved upon me. The department of surgical therapeutics and diagnosis does not fall to my care and will be ably discussed by Dr. Mudd tomorrow.

By therapeutics I do not mean to indicate a subject already well worn, though new, namely, an enumeration of the new remedies which the manufacturing chemists are foisting upon us with an ardor beyond description and with a success, so far as numbers are concerned, which is appalling to many conservative members of our profession. These drugs have their proper place and form only part of the great line of advance which while it is broken now and again by the development of a weak spot is nevertheless moving forward, bringing with it much cause for congratulation and many promises for even more beneficent results in the future. To regard our therapeutics of to-day as improved only because of the invention of such compounds is to ignore the whole cause for encouragement, namely the increasing tendency to place all our remedial measures on a rational basis.

Very closely associated with this improvement in therapeutics is the increased accuracy of diagnosis which modern research has placed in our hands, for the correct diagnosis of a case must always be an important preliminary to proper therapy. Not the least of these diagnostic gains is the ability which we possess to recognize the presence of tuberculosis when the signs of the disease are so indefinite that positive information of the condition of the patient can not be gained. Again in many instances where unusual and aberrant symptoms are present, microscopical examination of the blood may show the

presence of various micro-organisms. Nor should we forget the valuable aid rendered us by the advances in the diagnosis of gastric affections by the use of the stomach tube and the microscopical and chemical examination of the gastric contents, more especially in regard to the absence of hydrochloric acid in cancer and its excess in cases of gastric ulcer. Finally, an important aid to diagnosis in gastric disorders was the introduction of salol by Ewald to determine the motility of the stomach and the question of dilatation or atrophy.

The day is past when there is any excuse for the physician dodging a diagnosis and treating a patient on the indefinite basis of "general principles," and the public have learned that the shotgun prescription of years ago is only a cover for the ignorance of the medical attendant who expects the various drugs to influence an area the diseased state of which he is himself unable to discover.

The prescription of to-day is to be written only after careful examination and study of a case, and its constituents must be directed towards the condition they are to modify. It is necessary therefore that diagnosis should be well enough advanced to enable us to discover the exact stage of a malady and the precise condition of the patient's system in addition to the knowledge that a given disease is in existence in his body.

Fortunately the improvements in diagnosis and treatment have kept pace with one another although other branches of medical science have fallen to the rear. The advances have been rapidly yet gradually accomplished, not by startling leaps but by small and lasting accretions which have formed on the sides of our older views, either modifying their appearance or completely changing their aspect.

These gains have not been heralded to the profession and the world at large as have many of the newer surgical procedures which are often so brilliant at their inception that they dazzle the professional eye to such an extent as to blind it to the subsequent shrinkage which takes place in their practical importance. Sudden rushes are attractive and for this reason even the laity often chide the physician for failing to advance as rapidly as the surgeon. The very character of a surgical operation is destined to attract attention from the more humdrum, but none the less important, medical methods, yet it is the latter which require in many instances a greater amount of attention to the minute points of differential diagnosis. As I have pointed out elsewhere the relation of the knife to a diseased tissue must always be identical, while the relation of a drug to a disease process must constantly vary with the perverted function of the special protoplasm involved. The one carves the wood the other grafts upon its living cells impulses which alter its activity. In the one case the questions of shock and repair are

the points to be considered: in the other, the ever-changing vital processes still more varied by perverted function must be balanced and their importance weighed. For these reasons it is impossible for the physician to advance his methods by strides or bounds, and he can only remember the story of the hare and tortoise when accused of being dilatory.

Leaving these general views of the question of medical, in distinction from surgical advancement, let us if possible discover in what directions we have really made distinct advances. There are those who have seen method after method of diagnosis and treatment rise and fall, and who have in consequence become pessimistic as to the value of new ideas, partly perhaps because they have not employed them properly. There are others who are equally optimistic and excessive in the laudation of new or old methods of diagnosis or remedial measures. A careful survey of the field certainly shows that a gain commensurate with the amount of labor expended has been made, and the only loss or standstill that can be found is the tendency of the profession in general to rush after new things to the neglect of the old, which in many cases deserve more attention than is given them.

A very important part of this advance has been recognition of the fact that many conditions heretofore regarded as distinct individual maladies and treated accordingly, are in reality merely manifestations of functional disorder elsewhere. No more interesting example of this can be adduced than anæmia. But a few years ago we were taught that anæmia was a state in which the blood was impoverished, and these conditions of anæmia might be divided into those which were simple and essential—or in other words those which would respond to treatment and those that would not. We had this empirical information, and we also knew by experience that while iron was useful in one form of simple anæmia independent of malignant disease, arsenic was more valuable in another. Later than this we came to regard anæmia chiefly as a manifestation of disease in certain blood making organs or an important symptom of many perverted functions, and finally the invention and employment of the hematocytometer and the hemoglobinometer has enabled us to separate anæmia into a condition in which there is a decrease in the number of corpuscles or a decrease in the amount of hemoglobin in each corpuscle. In other words, we now know that pallor may be due to too few corpuscles or too little hemoglobin, and this being known it is only a step to the understanding of the empiricism of years ago in regard to the use of iron and arsenic, namely: that in that form of anæmia due to a diminution in the number of blood cells arsenic did good because by its alterative powers it increased cell activity in blood cell making organs, while where hemoglobin was lacking iron came particularly into play. For these reasons we find that small doses of alteratives, such as corrosive sublimate and other mercurials, often overcome the anæmia due to deficient manufacture of cells, and we may explain why it is that arsenic usually fails to do good in chlorosis, an anæmia of deficient hemoglobin, and succeeds in pernicious anæmia, which is characterized by a deficient number of corpuscles but relatively increased hemoglobin.

It is unfortunately only too true that the entire

subject of blood making and blood breaking is as yet very imperfectly understood, but our therapeutic facts rest on rational grounds now, if not before, and if the pathologist will give us more information upon these subjects, other remedial measures will be introduced or the empirical employment of others still further explained. Practically speaking, the therapist recognizes two very important points, the causes of which the pathologist must eventually solve, namely: that one class of anæmias are due to defective or deficient hemogenesis and another to excessive hemolysis. The former are generally believed to form the simple class and the latter the essential or pernicious class. It is in the deficient hemogenesis class that we fail. More than this, the causes of excessive hemolysis are so various that we can further divide them into removable and permanent; the removable being represented by the cases in which copremia or auto-intoxication takes place, and the others by the true pernicious anæmia, about which we really know very little, save that most observers find evidence of profound hemolysis in the percentage of iron in the liver: while in the dark colored urine they believe a destructive agent exists which prior to its excretion has slaughtered many corpuscles. Unfortunately it is at present impossible for us to separate clinically the hemogenous anæmia from that of hemolytic excess unless we find evidence of great corpuscular disintegration in a copious elimination of hemoglobin in the urine, or a jaundice evidently hematogenous in character, or a large number of defective corpuscles which would perhaps indicate defective hemogenesis rather than that they were scarred veterans of a battle with a poison in the liver cells or elsewhere. Post-mortem signs often aid us in the differential diagnosis, but this is too late to do any good to the doctor or patient.

There is one point, however, about which there can scarcely be any doubt, and that is that in many cases iron is greatly abused, being given where there is no indication for it, or more frequently given in excessive doses. By excessive doses I refer to as much as six to twelve grains a day of reduced iron. The amount of iron in the human body is very small, and every study ever made of its absorption and elimination after absorption has shown that these processes are very slow. Hamburger recovered from the feces nearly all the iron administered, and Jacobi proved that even when the iron was injected into the veins 10 per cent. was at once eliminated by the bowels, liver and kidneys, and the remainder deposited in the liver, spleen and other tissues in the same manner as is any metallic substance. The researches of Gottlieb have also been in confirmatory lines. When we consider that there is in the human blood only about thirty-nine grains of iron all told, we can see that the use of twelve grains a day in the course of a little over three days places a double quantity of the metal in the economy which is not needed, and is either cast out or deposited at any convenient spot to lie undisturbed until it can be extruded.

Much of course depends upon the cause of the anæmia, but there is only one excuse for the use of the doses named, viz: a condition of the digestive apparatus which results in the formation of a sulphide of iron in great quantity, so that only an infinitesimal amount escapes into the system. This explains the empirical fact that in some cases of chlorosis or intense anæmia iron has to be given in large doses to accomplish any good.

One of the best and most recent papers on this subject is that of Ralph Stockman, who gives a masterly summary of the subject of the absorption of iron in chlorosis. In this summary he points out that we have three chief theories as to the action of iron in anæmia. The first, the absorption theory, is based on the fact that as iron is taken into the body with the food, the iron of the hemoglobin must be obtained from this source, and therefore that medicinal iron given by the mouth must be absorbed. The second theory rests upon the belief that iron is not absorbed when given by the mouth, in addition to that in the food, but simply acts as a stimulant to the mucous membrane of the alimentary canal, therefore increasing the digestion of food and so overcoming anæmia by the general improvement coincident upon proper nutrition. The third theory is that of Bunge, namely: that in chlorotic conditions there exists an excess of sulphur or sulphuretted hydrogen in the bowel, which changes the iron in the food into a sulphide of iron which he says can not be absorbed. He believes that the inorganic iron which is given as a medicine saves the organic iron of the food by combining with the sulphur, and so indirectly cures the anæmia by the protection afforded the food iron. It is important to remember that each of these theories have been supported by many careful experiments, but it is also well to bear in mind that both the hypotheses and the experiments supporting them may be erroneously based. Thus we have no right to imagine that the inorganic preparations of iron have a stimulating power over the alimentary mucous membrane, or even if they have, that this power is exerted in the peculiar line of aiding in the absorption of the organic iron of the food. Again, the researches of Hamburger, Damaskin, Gottlieb, Muller, Jacobi and Socin which show that after the internal use of inorganic iron there is no increase in the iron in the urine, are valueless so far as the conclusions drawn by them are concerned, namely: that as there is no increase in iron in the urine there is none in the blood and therefore it is not absorbed. These conclusions are not justified, because they are based on the erroneous view that because iron is not in the urine it is not in the blood, and because it is not in the blood it is not absorbed. Every one knows that in the case of chronic lead poisoning when the body is saturated with the metal there is often no lead in the urine, the poison being deposited in the tissues, and if this is true of lead it may be of iron. Particularly is this to be remembered when we find Stockman quoting the researches of Mayer, Bidder and Schmidt and a host of others who have proved that we are not to look to the kidneys as the path for the excretion of iron, but to the intestinal walls. Finally, Stockman has proved that when iron is used hypodermically it cures anæmia when it can not stimulate the digestion or counteract sulphides.

Leaving the interesting and intricate subject of anæmia and its diagnosis and treatment we find another condition now recognized as a symptom, though still often classed as a disease, namely asthma. In reality asthma is no more a distinct disease than is dropsy. It is a manifestation of disease or disorder in other organs which result to some extent in local pulmonary signs. I need only mention the fact that every case of this condition will prevent some evidence of reflex irritation or other extraneous cause if it is carefully sought for, such as metallic poisoning,

hay fever, cardiac, or naso-pharyngeal disease. We have therefore made an advance in the gradual knocking away of the props holding asthma on the pinnacle of being a distinct disease and in a given case must direct our diagnostic and therapeutic powers first to the discovery and removal of the cause and second to the relief of the local manifestation at the time of the attack, including too, in many instances the treatment of the secondary conditions caused by the paroxysm. It will be remembered that at one time we had two schools of thought concerning the actual local cause of an asthmatic seizure: the one claiming that the obstruction to respiration was due to swelling and hyperæmia of the mucous membrane of the bronchial tubes; the other that it was the result of a spasm of the muscular fibers of these tubes. Now we know that both conditions exist and that both are probably the result of irritation or perverted function of the vagus nerves, for the filaments of this nerve are not only supplied to the bronchial muscles but also the local vessels. Further than this, the peculiar relation of these important nerves to the cardiac, gastric and pulmonary area and to the recurrent and superior laryngeal nerves all tend to complete a chain of physiological evidence hard to equal, particularly when we remember that the vagus is the governing nerve of the respiratory function and that its origin is intimately associated with important vital centers and nerve roots in the medulla. Here, then, we have an improvement in etiological knowledge which enables us to discern a cause, and give an explanation of almost every empirical fact regarding the use of anti-asthmatic drugs, since nearly every one of these we now know depends upon its action upon the unstriated muscular fibers, the vagus nerve or on the depression of reflex activity, for its therapeutic power.

There is still another condition which is gradually passing from the list of diseases into the list of symptoms, namely diabetes mellitus. Its passage from the dignity of a disease in itself to the less important place of a manifestation of a disease process underlying it, is only delayed because the physiologist and pathologist have not succeeded in fully explaining the process of sugar manufacture in the body in health and disease. Even at the present time we scarcely appreciate the numerous causes which have already been discovered as capable of producing this symptom. Not only does injury to Bernard's center in the fourth ventricle result in hepatic hyperæmia which in turn results in glycosuria, but section of the vaso-motor fibers in the spinal cord at such a point as to involve the nerves of the liver results in similar disorder according to Schiff. Pavy has proved that destruction of the superior and inferior cervical sympathetic has this effect and it has been known to follow intense inflammation or irritation of such nerves as the sciatic and trigeminus, and some have gone so far as to explain the glycosuria seen sometimes in those suffering from sciatica to the sciatic irritation.

Aside from these nervous factors governing glycosuria very much more recent studies have shown that the gradually growing recognition of diabetes as a symptom is founded on a sound basis, for we have now before us undeniable evidence that such a thing as pancreatic diabetes may occur. Years ago it was first noted as a physiological possibility, but the recent studies of Minkowski and von Mering with

several others have placed the entire question in a better light. Extirpation of this gland results in glycosuria but if one-fifth of it is left behind the sugar does not appear in the urine and this, with other facts, points to the pancreas having a power through a ferment rather than by its general secretion. Clinical cases are also now on record in which after death there has been found a condition of fatty degeneration or atrophy of the gland, either as the result of some morbid process or indirectly through the impaction of calculi in the pancreatic duct which led to fatty degeneration or a cirrhosis as in the cases recently recorded by Freyham. Therapeutics can do more for the diabetic than the pathologist can tell him of the cause of his disease, but the recollection that diabetes is a symptom of a number of conditions should lead the physician to the recognition of the fact that if a remedy successful in one case fails in another it is probably because he has failed to discover that the cause in each case is not identical.

The ability to apply observation to cases with resulting accurate diagnosis and still more accurate therapeutics can be admired in every instance where it is observed, but it would be difficult to name a more eminent illustration of the beneficent results of such a trinity of good offices than is pictured by the work of Lauder Brunton on the nitrites. Brunton had noticed two facts, the one in the sick room, the other in the laboratory. By the bedside he found that in many cases of angina pectoris a condition of intense arterial tension existed which was manifested not only in the cord-like condition of the arteries but also by the pallor of the skin due to contraction of the peripheral capillaries. This condition often preceded the attack of pain. Instead of tossing this discovery aside with the dogmatic belief that it was a secondary result of severe pain, he looked further to see if there was a causal relationship between the two conditions. Remembering that the over-distension of any muscular cavity such as the bladder or intestine results in pain, it occurred to him that a spasm of the arterial system might result in such over-distention of the heart muscle, already feeble, as to cause the typical pain of angina pectoris and this hypothesis was supported by a recollection of several facts, namely, that exercise always produces contraction of the blood vessels partly by the contraction of voluntary muscles on large areas of capillaries by the increased demands on the circulation, and finally that it is in gouty persons with irritable blood vessel walls that angina pectoris most frequently asserts itself.

In the laboratory Brunton had found that the nitrites all lowered arterial pressure and by so doing caused the heart to empty itself very readily of blood, partly by depressing the vagus nerves and so permitting increased cardiac action. Here then was, in theory at least, the very remedy which should meet the indications in heart-pang and the practical application of the hypothesis has given us that valuable method of treatment so universally employed.

The interesting relationship between physiological and chemical research and practical therapeutics when they are associated through logical deduction can also be readily studied in the production and use of a number of compounds, but in none other more satisfactorily than in the nitrites. Chemistry showed the various combinations which could be

formed in this series and proved that some of them were more stable than others, the pharmacologist showed that those who had stability were more slowly decomposed in the animal organism, and in consequence that their action was not so sudden nor so fleeting, and the therapist recognizing that an unstable preparation, such as nitrite of amyl, could only be used for momentary effects at once found the stable compounds of peculiar value when continued action was desired. It is because of this stability and consequent comparative slowness of action that the nitrite of sodium, potassium and nitroglycerin find favor and that the still more recently employed and more stable compound, cobalto-nitrite of potassium bids fair to come into general use.

I can not leave this subject without pausing for the moment to insist on the importance of this question of seeking always for the cause producing any symptom, in order that our therapeutic measures may be well applied. Many of us have doubtless experienced in boyhood "the pain in the side" about the heart which was such an annoying and incapacitating complication of foot races or the game of hare and hounds. For a number of years I wondered what the explanation of this pain was, and still more why it passed away as the boy gets "his second wind." The reason is now evident. The first effect of severe exercise is to cause a rise of arterial pressure by reason of increased circulatory activity; this is soon accentuated by the obstruction offered to the flow in the capillaries of contracted muscles which ordinarily are vast capillary areas, and finally the effort generates an increased amount of carbonic acid gas in the blood which stimulates the vasomotor center and still further increases arterial resistance. As a result of these agents and the altered pulmonary circulation the heart becomes distended with blood and pain results. Almost at once, however, the natural demand for blood made by all organs when in activity causes secondary hyperæmia in the peripheral capillaries, the lungs are able to catch up to and eliminate the CO_2 and the heart is able to carry on its duty with ease, even though the excessive exercise be continued or in other words the boy gets his "second wind." There are good reasons, therefore, in the custom which prevails among some athletes of taking strychnine or caffeine or black coffee before a foot-race on the ground that it saves their wind. By means of these powerful cardiac and respiratory stimulants they enable the heart to overcome resistance and avoid distension of its cavities and also increase the ability of the nervous centers to discharge impulses which the nerve trunks may the more quickly carry to the more tributary muscles. Such a form of explanation underlies the pathology and treatment of "shock," a condition often wrongly treated because its rationale is not understood. All causes which give rise to great nerve impulses result in some degree or stage of shock and these states are chiefly manifested in the heart and vasomotor system. As has been well pointed out elsewhere, any frightened woman will exclaim, "you frightened me so my heart stood still," and a second later will remark, "just feel how fast my heart beats." The primary shock has so stimulated her inhibitory cardiac nerves that they at first inhibit the action of the heart muscle and then having acted excessively reaction sets in and they permit the heart to move on uncontrolled even to an ordinary degree.

This condition in a more or less modified form is found in all cases of "shock." It has been proved by experimentation on the lower animals that it is practically impossible to produce death by irritation of the vagus and we know that death rarely occurs in the first stage of shock unless there exist previously cardiac disease in the muscle or valves. We very rarely see shock in its first stage except in the man who has "his breath knocked out of him" by a blow, not over his lungs, but over the solar plexus which reflexly results in vagal irritation. It is the second stage of shock which we are called upon to treat. Here we have the entire vascular area in a condition of profound relaxation, a condition exceedingly dangerous to cardiac integrity. Nothing is more stimulating to a man in accomplishing a task than a moderate amount of opposition or number of difficulties, and nothing is more stimulating to the heart than the normal resistance offered by a blood pressure maintained by an intact vasomotor center. The blood vessels relaxed the heart pumps, as it were, into vacancy or as impotent of result and as exhaustingly as the wheels of an engine on a slippery rail. The result is rapid failure of the cardiac muscle by reason of futile endeavor and because the coronary arteries are imperfectly filled. The great arterial relaxation also results in serious changes in nutrition and the profuse sweat weakens and chills the body. It is at this time that the employment of belladonna or atropine becomes valuable in the extreme. By its peculiar influence on the vasomotor center it produces normal vascular tone, stops the leaking skin and steadies the circulation, simultaneously tending to raise bodily temperature. If at the same time hot coffee be given as a cardiac tonic containing heat, and strychnine is used we have a fulfillment of every indication.

Elsewhere I have called attention to what seems a common error on the part of many practitioners, namely, an unnecessary dread of good sized doses of strychnine. We frequently see $\frac{1}{16}$ or $\frac{1}{32}$ grain given at a time when better results would be obtained if $\frac{1}{16}$ to $\frac{1}{8}$ grain was used hypodermically. Profound collapse or advanced shock enable the patient to withstand large doses of this drug, as does severe pain enable him to withstand full doses of opium, and full doses must be used if good results are to be expected. The question of the effect of mental shock or fright upon surgical shock is of great importance. Even animals, when brought directly from the street to operating table, show these signs most markedly, and how often does the gynecologist try to get his patient away from the sight of the preparation for the operation, or away from the little children to whom the mother bids a tearful goodbye before going on the table for a severe operation.

A valuable illustration of advances made in our understanding of certain diseases is afforded by epilepsy. There is probably no one here to-day who does not remember the time when the seat of origin of the epileptic seizure was in dispute, some holding that it was due to disorder of the circulation at the base of the brain, and others that it arose from disturbance in the cerebral cortex. Thanks to the studies of Ferrier and a host of others in England and on the continent, we now know that true epileptic seizures have their origin in the cortex and practically nowhere else. This being known, the rationale of the employment of the bromides in this disease

was speedily explained through the researches of Albertoni and of Seppilli, who found that these preparations so depressed the cerebral cortex in its motor area that far stronger currents were required to elicit muscular response when the animal was under the influence of bromides than when in his normal state or under the influence of the ordinary anesthetics. At the same time that this depressant action of the bromides was discovered, its powerful influence as a depressant to reflex action became fully appreciated, and its influence in a convulsive disorder such as epilepsy became the better understood. It is true that there is still a great deal to be done before we discover the cause of the epileptic attack, or in other words, the changes in the cerebral cells which permit of epileptic discharges, but even in so strange a disorder there is reason to hope that improved methods of research may eventually remove this blot on the fair fame of modern pathology. Nor is this hope without foundation for its accomplishment. Those of you who have had the opportunity to study the elaborate research of Hodges of Madison, in this State, will already have reasoned that if the changes in the nerve cells produced by excessive exercise can be studied by means of staining and the microscope, that it is not impossible for the changes in epileptic cells to be noted by methods of a similar character, particularly as epilepsy is a disease which is seen in the lower animals as well as in man. While such studies as those which have just been mentioned show advances in the indications for and rational employment of drugs, instances are not lacking in which contra indications to the use of some remedies have been developed or the empirical knowledge of their contra indication explained. Thus it had been a recognized fact in therapeutics that quinine when given in full doses always caused an increase in the number and severity of epileptic seizures in those who were subject to this malady, but it remained for the experimental therapist to show that quinine stimulated the cerebral cortex and so caused increased irritability of the motor area.

Again, the knowledge of the depressant action of chloral on the motor tract of the spinal cord and the same effect of bromides on the sensory tracts has placed in our hands the best antidotal treatment for strychnine poisoning, while the discovery that conium produces muscular quiet by depressing the motor nerves and not by acting on the spinal cord shows us that in spinal convulsions its employment is irrational because it only blocks the pathway to the muscles instead of preventing the discharge of impulses by acting on the parts directly at fault.

The discussion of this topic would not be complete did I not refer to one very familiar example of the value of physiological and pathological research in relation to disease, namely, the discovery of the malarial germ and the fact that quinine kills this organism. Only ten years ago we were taught that the use of quinine in malarial disease was purely empirical and to-day its rational employment is accepted universally all over the world.

In our pride over our advances made because of good sense we should not, however, sneer at some improvement equally valuable which are in our hands to-day rather because good luck than by logical deduction. Thus the scarcity of quinine and its consequent high price forced the chemist to seek for a method of producing this drug by synthesis, and the result has

been not only the direct discovery of the value of salicylic acid in rheumatism, but indirectly the development of that invaluable class of remedies of which antipyrine is the chief. Nor does the value of acetanilide, phenacetine and antipyrine rest upon the action for which they were introduced into medicine, namely, the reduction of fever but rather upon their power, accidentally discovered, to relieve pain.

The value of some of the compounds derived from the same sources is in several instances quite equal to that of the integral parts. Thus salol is a remedy which many of us would no more dispense with in intestinal diseases than we would give up opium, quinine and digitalis.

Of the prospective value of the treatment of infectious diseases by infections of serum from those who have been rendered immune, of the promises held out to us by the pathologist of a more clear understanding of many puzzling diseases and of the possibilities of drug therapeutics in the near future I shall not speak. Much might be said of them, but in their present condition they exist more in the future than the present.

We are certainly passing through the golden age of medicine, and by the rational line of our advance are avoiding those theories which have misled our predecessors into beliefs since proved to be erroneous.

The American Medical Association not only links the profession into a chain which overcomes superstition and discovers fallacy, but by its ennobling influence produces unconsciously a wave of medical advance which sweeps on as grandly as does that of any other art or science known to man.

GOLD; WITH ESPECIAL REFERENCE TO ITS CLINICAL APPLICATION.

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Pharmacology.—The only form in which gold is officinal is that of the so-called double chloride of gold and sodium, a combination of equal parts of the two salts, the compound corresponding to 32.4 of the metal. Auric chloride, though itself soluble in water, is not well absorbed. The dose of the chloride of gold and sodium may be stated as from $\frac{1}{30}$ to $\frac{1}{10}$ grain.

The bromide has been employed, but has the disadvantage of being a less soluble salt than the double chloride. The bromide may be given in daily doses varying from $\frac{1}{10}$ to $\frac{1}{5}$ grain. The cyanide of gold has also been used. This salt is a yellowish crystalline powder devoid of taste, insoluble in water, alcohol and ether. The dose of the cyanide is $\frac{1}{30}$ to $\frac{1}{10}$ grain.

Physiological Action.—Concentrated preparations of gold have an escharotic effect when locally applied. When taken internally in small doses gold promotes the functions of the gastric tubules and hepatic cells. It consequently facilitates digestion. The composition of the blood is likewise favorably affected. The double chloride occasions constipation. A tonic and antispasmodic influence is exerted upon the blood by preparations of this metal. In some instances it produces exhilaration of mind. Gold contributes to vigor of the muscular tissue and strengthens the action of the heart. It is thought to have a decided aphrodisiac effect. In men it may give rise to pain-

ful erections and in women may increase the menstrual flow. It excites the action of the kidneys, augments the quantity of urine and communicates a yellow color to that fluid.

Large doses of gold excite salivation without producing any effect upon the teeth or gums, diminish the oxidizing power of the red blood corpuscles and give rise to what has been called auric fever, in which the perspiration, saliva and urine are increased. Metabolism of tissue is rendered more rapid and waste is in excess of repair.

Excessive doses are followed by the phenomena of irritant poisoning, gastro-enteritis with burning pain along the alimentary tract, vomiting and retching, depressed circulation, etc. The antidotes to this condition are albumen and demulcents.

Gold is eliminated chiefly by the kidneys, but to some extent by the liver and bowels.

Therapy.—In chronic dyspepsia due to depressed vitality with deficient secretion of the digestive fluids, the administration of small doses of chloride of gold and sodium is frequently attended with much improvement. This remedy is of especial service in derangements of digestion caused by nervous strain, such as anxiety, suspense, dread of misfortune, excessive devotion to business, etc., influences so common and so potent in modern life. The reflex influence of dyspepsia upon the nervous and circulatory systems is also relieved by the employment of the double salt of gold and sodium. Vertigo dependent upon disturbed digestion is often notably benefited. Preparations of gold are likewise serviceable in the treatment of chronic gastric or gastro-duodenal catarrh. The physical and mental symptoms associated with habitual inactivity of the liver are favorably influenced by the administration of the double chloride. A case aptly illustrative of dyspeptic and nervous trouble due to sluggish liver, in which marked improvement attended the administration of gold, may here be briefly described:

A man thirty-four years of age, of sallow complexion and subject to occasional attacks of jaundice, had suffered for three years from labored and painful digestion. His bowels were habitually constipated, the alvine evacuations being dry and putty-like in appearance. He was subject to numbness and prickling sensations in various portions of the body. He complained of frequent attacks of headache, lack of attention and memory and a loss of self confidence. He was habitually troubled with insomnia.

Gold is of avail in certain structural diseases of the liver. In acute yellow atrophy, before degeneration of the hepatic cells has taken place, Professor Bartholow has suggested that the chloride of gold and sodium might stay the progress of the degenerative alterations. The same writer believes that the preparation just named has some real power in arresting amyloid degeneration of the liver. I have witnessed good results in the early stages of cirrhosis of the liver from the employment of the remedy. It checks the production of interstitial connective tissue and is perhaps able to cause absorption of the newly formed material. Reference may here be made to two cases of cirrhosis of the liver in which the chloride of gold and sodium was serviceably employed:

A woman fifty years of age, stated that she had generally enjoyed good health. Many years previously she had suffered from attacks of intermittent fever but had never had articular rheumatism. Three

weeks before coming under observation her abdomen had enlarged. Her urine was scanty and high colored. During the last month or two her appetite had failed. There were no decided symptoms of indigestion. There was no œdema of eyelids or ankles. The patient was troubled with shortness of breath. She had had no hemorrhages from the stomach or bowels. The area of liver dullness was slightly diminished. The abdominal enlargement was due to beginning ascites. The liver had begun to contract, though there was not as yet much decrease in its volume. The patient was placed upon a mixed diet. In addition to the gold the medicinal treatment consisted solely of an occasional dose of compound jalap powder. In two weeks' time the effusion had sensibly lessened, the patient felt more cheerful and the appetite had improved. In this bettered condition she has remained for more than two years without recurrence of the ascites.

A man forty years of age, had had a capricious appetite and feeble digestion for about two years. During much of that time he had been troubled by vomiting after breakfast and irregularity of the bowels. The urine had for a long time been habitually scanty and high colored. Upon one or two occasions he had vomited blood. He had within two weeks begun to rapidly lose flesh and strength. The liver dullness seemed normal in extent. The result of treatment in this case was very satisfactory. Under the influence of gold the fluid was absorbed, the digestion improved, the man regained flesh and strength and regards himself as entirely cured. There has been no return of the ascites for three years.

Sclerosis of the kidney is effectively influenced by the same means. In other forms of renal disease associated with albuminuria, gold will not infrequently be found to serve a good purpose. Dr. G. Frank Lydston of Chicago, has recently reported a case of pyelitis in which the symptoms were materially ameliorated by the hypodermic injection of chloride of gold and sodium.

In certain disorders of the nervous system gold is decidedly beneficial. It has been recommended in whooping cough, laryngismus stridulus and persistent hiccup. I have observed good results follow its use in hysteria, hypochondriasis and melancholia. A typical case of hypochondriasis may be cited in evidence of the efficacy of this remedy:

An active business man about fifty years of age, of limited education but who, by intense and anxious application had acquired a competence, had generally been healthy until six months previously, when he had been attacked by some cutaneous disorder which, judging from his description, was ecthyma. No history of syphilis could be obtained, and an anti-syphilitic course to which he had been subjected had rather aggravated than improved his condition. After the sores had healed the man was suddenly seized with abnormal nervous sensations. He felt as if an indescribable something had entered his head. He became pale and nervous. From that time onward he was the victim of numerous nervous manifestations. The man became subject to pain which was sometimes dull and at other times sharp. The pain affected different portions of the head. He also suffered from smarting, tingling, burning and crawling sensations of the scalp and face. Fibrillar twitchings of the facial muscles could be both seen

and felt. The upper limbs felt numb and at times he had a sensation that his whole head was swollen. He was greatly troubled by insomnia, so that often he dreaded to go to bed. He would, after sleeping a few hours, awake feeling as if he had no control over himself. He would get out of bed, would feel weak and have palpitation of the heart and shortness of breath. The patient also suffered from a dread of being alone or walking the streets alone. Gradually he became afflicted with flatulent dyspepsia. When the digestion was especially at fault the nervous manifestations became more severe. His mentality became strangely affected. In the early period of his malady he was accustomed to fancy that when the sores had been healed some morbid entity had been driven into his system. Subsequently this idea was replaced by others which gradually rose to the rank of delusions. The patient continually brooded over his condition. He abandoned his business almost entirely, though when he succeeded in forgetting for a little while his ailments and applied his mind to business his judgment was as good as ever and his memory was unimpaired.

Dr. Goubert advocates the administration of bromide of gold in migraine, chorea, exophthalmic goitre and epilepsy. He gives the salt in solution in the daily dose of $\frac{1}{10}$ to $\frac{1}{6}$ grain to adults and from $\frac{1}{30}$ to $\frac{1}{10}$ grain to children.

The chloride of gold and sodium has proved of service in posterior spinal sclerosis. The shooting pains are alleviated, the incoördination becomes less marked, or at least does not increase, and the course of the affection is arrested. These results depend upon the influence of the remedy over the pathological formation of fibrous tissue.

The tremors due to cerebro-spinal sclerosis were markedly diminished in the case of a woman fifty-three years of age. The muscles of the limbs were habitually tremulous. Disordered mobility was but slightly perceptible in the face. The woman suffered also from attacks of vertigo. The act of walking was not much impeded, but the patient was easily fatigued. A very noticeable improvement was produced by the persistent employment of the chloride of gold and sodium.

In senile vertigo due to arterio-sclerosis the effect of gold upon the processes of nutrition is attended by relief of the alarming symptoms. In this connection a clinical case may be mentioned: A gentleman sixty-eight years of age, of good personal history and habits, had led a laborious life until within a few years past, when he was obliged to retire from business. He was a slender built, wiry man, and had always been strong and active. His muscular strength, however, began to decline, he suffered from sleeplessness, his appetite decreased. Being without occupation he began to amuse himself by taking long daily walks through the city streets. After a time he experienced occasional attacks of vertigo. Finally in a sudden accession of giddiness he fell heavily to the ground, and sustained a lacerated and contused wound of the scalp. When I visited the patient, several hours after the accident, I found, though he had recovered consciousness and was strong enough to sit up, that the cardiac action was weak, that the radial arteries were slightly hardened and that the arcus senilis was present. Rest in bed for about a week, symptomatic treatment and careful nursing measurably restored his strength. Some suppura-

tion attended the wound, but in about three weeks it was entirely healed and the man was able to take a short walk out of doors. He was then placed upon the chloride of gold and sodium. A month subsequently he expressed himself as feeling better than before the fall. The heart was stronger, his breathing was less short, his appetite was good and his general condition equal to that of most men of his age. There had been no return of the vertigo. He was cautioned against hearty eating and especially against long walks. He then went into the country and spent some months, taking carriage rides and walking but short distances. The use of the gold was continued during this period. Upon his return he informed me that during the interval he had remained entirely free from vertigo.

In disorders of the genital apparatus gold has a sphere of usefulness. Amenorrhœa not dependent upon obstruction will often yield to the influence of gold. The double chloride is the preparation which I have used in treating this condition, but Oesterlen reports equally good results from exhibition of the cyanide, which he preferably gives made into tablets with chocolate. Functional dysmenorrhœa is notably relieved by the use of gold. Chronic inflammation of the womb or ovary is also benefited by the employment of this remedy. Cases have been reported in which it served a good purpose where a habitual tendency to abortion was present, the foetus being carried by its aid to full term and a living child being born. Gold is advantageously used in the treatment of functional impotence.

From the beneficial effect which this metal has upon nutritive processes it exerts a reconstituent influence in a number of constitutional disorders. First among these may be named syphilis. Gold is efficacious in the treatment of the secondary manifestations, but it is more especially in the later stages of the disease that its value is most apparent. It may very serviceably replace, alternate or be combined with the corrosive sublimate, and is of signal service in those cases in which the mercurial is badly borne. In syphilitic ecthyma, rupia, ulcerated syphiloderm or gumma, and in syphilitic ulcers of the throat, the chloride of gold and sodium has been found of utility. I have often employed this remedy in these conditions, and generally with advantage. In ozœna, syphilitic disease of bones, muscles and viscera gold should be thought of whenever the patient is not benefited by the remedies more usually employed. Syphilis of the lung or nervous system is often remarkably relieved by the administration of gold.

The double chloride of gold and sodium is an efficient remedy in scrofulous adenitis. If caseous change has not yet occurred the swellings are reduced in size, the patient gains in weight, the flesh becomes more firm, appetite and digestion improve. If degeneration has taken place the work of repair is promoted and the scarring is reduced to a minimum. The case of a girl aged fifteen years, affords a good illustration of the value of gold in scrofuloderma. She had been subject for two years to glandular enlargements in the neck. Many of the glands had degenerated. Several sinuses, the floors of which were covered with cheesy material, were in existence and communicated with each other. Upon both sides of the neck glands were found exhibiting different stages of disease. A thorough operation seemed

unquestionably demanded, but to this the patient would not submit. The double chloride was administered for several months, and at the expiration of that period the sinuses had healed and suppuration was arrested. The tumefied glands shrank to a size approaching the normal. The result, as far as healing was concerned was satisfactory, though the disfigurement was greater than if the case had been seen earlier or operative measures had been allowed.

The administration of gold is productive of good results in ulcerated lupus. The surface of the obstinate sores exhibit more activity, the granulations become more healthy in appearance and ultimately cicatrization is accomplished. Dr. Joseph Drzewieck of Warsaw, Poland, also testifies to the efficacy of gold in lupus. The author quoted administered the chloride of gold in doses of $\frac{1}{150}$ grain three times a day. The same writer states that gold is now being used in the hospital at Warsaw in the treatment of phthisis.¹ The chloride of gold and sodium enters into the plan of treatment of tuberculosis proposed by Drs. Shurley and Gibbes. Alternating hypodermic injections are made of the double salt and iodine. The authors have reported a series of cases in which their method was attended with improvement of the signs and symptoms of the disease. Favorable communications have been published in regard to the efficacy of this method by other observers.

The chloride of gold or the chloride of gold and sodium may prove of service in the treatment of the alcohol habit. Injections of the metallic salt will probably do good by exerting a corroborant influence upon the nervous system and weakening the craving for alcoholic drink. Dr. E. M. Hale has reported a case of chronic tobacco poisoning accompanied by a condition of extreme prostration and a state resembling incipient delirium tremens. The chloride of gold and sodium was administered in the dose of $\frac{1}{60}$ grain before each meal and upon going to bed. The serious condition was entirely overcome. Dr. Hale has also made use of the same remedy with advantage in the treatment of morphine addiction.

The subcutaneous injection of gold is said by Calmette to be antidotal to the poison of the cobra di capello. This observer made fifty-two experiments upon various species of warm-blooded animals. He is of the opinion that the venom may be neutralized even after it has been absorbed, and that the treatment may be successfully applied to human beings.

Cases of diabetes mellitus have been reported in which the employment of gold has restrained the excessive thirst and discharge of saccharine urine. The remedy is said also to be of service in checking the advance of premature senility.

SQUINT AND ITS TREATMENT.

Read before the Meeting of the Illinois State Medical Society,
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We understand by squint or strabismus that condition of the eyes in which the visual axis of one deviates from the visual axis of the other, when in a position of fixation upon an object.

¹ Annual of the Universal Medical Sciences, Vol. v. 1892.

The normal position of the visual axis is parallel when the eyes are fixed upon a point at an infinite distance, and more or less convergent when fixed upon any object nearer than infinity.

Paralysis of any individual or group of the extrinsic muscles of the eye would give rise to a disturbance of this adjustment of the visual axes and cause paralytic strabismus.

In this, the movements of the affected eye would be more or less restricted in those directions controlled by paralyzed muscles, and there would be a corresponding deviation of the axis of the eye; while in movements in other directions it would follow the sound eye and the axes would be normal.

In the condition known as concomitant strabismus, which it is the purpose of this paper to consider, there is no paralysis, for the squinting eye follows the other in all its movements. Furthermore, the same angle of deviation from the axis of the sound eye is maintained in any position the eyes may assume, whereas in paralytic squint, the difference between the two becomes more marked when the eyes are moved in the direction of the paralyzed muscle. In concomitant strabismus the sound eye takes a faulty position whenever the unhealthy one fixes upon an object. For example, if the healthy eye is covered with a card, and the squinting eye compelled to fix upon a certain object, as the surgeon's fingers held up at a distance of a foot or two from the face, the sound eye will be noticed to deviate from the normal position, and in fact to deviate to the same extent that the unhealthy one does when both are uncovered.

This secondary deviation, as it is called on the part of the sound eye, is always equal to that of the squinting eye.

We have furnished here one of the most characteristic differential points between concomitant and paralytic strabismus, for in the latter the secondary deviation is much greater than the primary.

Concomitant squint may assume any one of four directions—inward, outward, upward or downward, of which the inward, the convergent form, is by far the most common while the next most frequent is the outward or divergent variety.

In looking for the cause of convergent strabismus, several factors have to be considered. In a large majority of cases, as was first shown by Donders, there exists a certain amount of hypermetropia and on account of this the relation between accommodation and convergence is disturbed. The same nervous impulse that brings about the act of accommodation, also excites the act of convergence in order that there may be binocular vision. In hypermetropic eyes the impulse to accommodation necessary to focus rays coming from a near object would require to be stronger than if the eyes were emmetropic, while the degree of convergence required would not have to be increased. Hence results a lack of harmony between accommodation and convergence and for a long time this was adduced as the dominant cause of convergent squint.

Although this may be one of the influential factors in the production of squint, there are some very potent objections to the view that it is the only cause, among which are the facts that all eyes affected with hypermetropia do not squint; and that even in the high degrees of it in which, according to the theory of Donders there should be extreme strabismus,

there is very often none. Further, this theory does not explain the convergent strabismus occurring in myopes or emmetropes who make no excessive efforts of accommodation.

Schweigger's theory sets forth that the cause of the convergent form is to be found in the lack of equilibrium between the internal and external recti muscles and that there is an insufficiency of the externus owing to lack of development or an abnormal thickening and shortening of the opposing muscle.

Hansen Grut considers that the shortening and thickening of the internus is one of the main factors in the production of convergent squint and that this is brought about by excessive and prolonged innervation of these muscles.

The size and shape of the eyeball and orbit may also play a role in the production of this condition; if the eyeballs are short and widely separated from each other, and the orbits deep, it can readily be understood how such eyes would have more of a tendency to converge than eyes with long antero-posterior diameters placed in shallow orbits.

In a very great number of these cases, according to Schweigger 30 per cent., to Nagel 70 per cent., there is defective visual power or amblyopia of the squinting eye, amounting in some cases to almost complete blindness, so that the patient is unable to see even the largest letters. In such cases there is very little change in the ophthalmoscopic appearance of the eye; perhaps a bit more pigment around the disc, or a faint discoloration of it, or a slight stippled condition around the yellow spot, that in other cases would hardly attract attention.

It is quite fair to assume that in many of these cases the amblyopia is congenital, and not the result of want of use resulting from defective refractive conditions of the eye, for in many the error is so slight that it is scarcely conceivable how such a change could be effected thereby. But in other cases the refractive element seems to be a prominent cause of the amblyopia, as well as of the strabismus and it is in this class that real improvement in visual acuity may result from wearing glasses that fully correct the ametropia.

The true cause of the amblyopia in many cases is possibly to be sought for in a lack of development of the perceptive centers; so, it is not unlikely that the delicate nerve centers that preside over the innervation of the muscles of accommodation and convergence may be at fault so that an incoördinate action of the extrinsic muscles of the eye results.

Defective outward mobility, particularly of the squinting eye, is frequently seen, showing the weakness of the externus; and examinations in numbers of cases go to prove that defective abductive power is a very prominent factor in the causation of convergent strabismus.

The cause of divergent squint is most frequently to be found in myopia. The myope, being compelled to hold objects very near to get the best vision, weakens his interni muscles by excessive use and allows the externus to draw the eye outward.

A squint may be permanent or it may be periodic, in which case it occurs usually when some great effort of accommodation is made.

It may be monocular or it may be alternating, in which case either eye will be able to fix upon an object, the other squinting in the meantime. In the

latter variety it is usual to find that the vision is fairly good in both eyes, while in monocular squint the unsound eye is frequently amblyopic.

Treatment.—The results aimed at in the treatment of squint are the relief of the unsightly deformity and the restoration of binocular vision, if this has ever existed. The value of a full correction with suitable lenses, of errors of refraction in children or older patients who show a tendency to squint, has become very widely recognized among specialists. Children as young as two years may be provided with glasses, and by this means many of them will be prevented from acquiring the habit of squinting. In many cases of the periodic and alternating forms of the affection it is very probable that the anomalous refractive condition of the eye is largely accountable for the establishment of the squint, and that if the error be corrected by proper glasses, an important exciting factor will be set aside. Furthermore, it seems probable that in a considerable proportion of the cases belonging to the above mentioned classes, a part if not all of the amblyopia is dependent upon the error of refraction, and is the result of imperfect functional development of the retina, or of the perceptive centers occasioned by imperfect visual impressions. Such a view is suggested by the fact I have repeatedly seen demonstrated, that a full correction of hypermetropia and hypermetropic astigmatism in cases in which the vision is considerably impaired, has often the effect of markedly improving the sight. Such cases go to sustain the theory that the amblyopia is "ex-anopsia," and that because since birth the retina has never received distinct images it has failed to develop its complete function. Accordingly in all cases showing any tendency to development of squint, glasses that fully correct the hypermetropia and astigmatism should be constantly worn. We can not promise that in all cases the result will be satisfactory; probably it will not be so, in those in which congenital amblyopia not due to refractive error exists.

It is in children that the test known as retinoscopy or sciascopy is peculiarly valuable as a means of determining the refractive condition of the eyes. With it the total amount of ametropia together with the astigmatism can be estimated more accurately than can be done with the ophthalmoscope and the ophthalmometer, although the value of the latter instrument for determining the degree and the meridians of astigmatism is a settled matter.

In conjunction with the treatment with glasses, the child may wear a bandage over the sound eye for several hours a day to compel the weak one to exert itself and to fix upon objects, in the hope that the vision may thereby be improved.

In many of these cases, however, nothing short of operative treatment will avail, but before this is attempted a careful consideration should be given to certain points. As stated above the refraction should be examined, and if the patient is old enough to read, a test of the acuity of vision should be made with the test letters, and also an examination to determine the presence or absence of diplopia. If the latter exists it indicates that the sight of the squinting eye is still good, and there may be hope of restoring binocular vision by the use of correcting glasses after the operation. The angle of deviation should also be carefully measured with the perimenter, and at the same time and in the same way the lateral

mobility of the eyes, especially the mobility outward of the squinting eye, should be estimated. It is not considered advisable to operate on children under the age of six years, and even after that age not until glasses have been given a thorough trial. Particularly is this true in cases of alternating squint, in which it is probable that the difficulty is occasioned by a hyperopic condition of the eyes. In quite a number of such cases the squint disappears before the age of puberty is reached, so that if an operation of dividing the tendon of the internal rectus were done early in life a deviation outward might subsequently develop. The operation for the relief of convergent strabismus may be either a tenotomy of the internus by which the adductive power is diminished, or an advancement of its opponent the externus, by which the adductive power is increased; or a combination of both may be practiced. If the deviation amount to 15° or less and the outward mobility of the squinting eye is good, a tenotomy of the internus will correct the error; while if the squint measure between 15° and 30°, tenotomy of both interni will be needed, or in the event of the externus being too weak, tenotomy of the internus combined with advancement of the externus. Division of the internus will usually effect a correction of 15°, but this may be still further increased by loosening the attachments of the capsule of Tenon. This, however, should be cautiously done, lest the power of the internus be permanently weakened by the muscle slipping too far back.

In very many of these cases the externus is either abnormally weak, or it has its attachment so far back that it has not the control over the eye that it should have. It is certainly more rational to strengthen the weak muscle than to attempt to correct the deformity by weakening a muscle that, in very many of the cases, is only relatively too strong. I think, too, it is possible to gauge the effect more accurately by this procedure, even in a low degree of squint, than by making a complete tenotomy on one eye with possibly a subsequent one on the other. This applies especially to those cases in which one eye is distinctly amblyopic and in which the deviation is 25° or 30° or more. To do a double tenotomy in such a case would not be as rational treatment as to operate on the affected eye alone with a tenotomy of the internus combined with advancement of the opponent.

De Wecker practices what he calls capsular advancement, which consists in bringing forward the capsule of Tenon at the point of attachment of the opposing muscle, without dividing the tendon itself. In slight cases this answers every purpose. It is better to leave the eye slightly convergent after operating, as the effect of the treatment is likely to increase.

In the divergent strabismus of myopia, caused by the weakening of the interni from excessive use, as was mentioned, the most scientific treatment is an advancement of the internus rather than a division of the externus, which would still further limit the mobility of the eyeball. That this unsightly deformity of squint can be safely and satisfactorily removed there can be no question; and it has also been indubitably demonstrated in the experience of many that in a fair proportion of cases the restoration of useful binocular vision is quite possible.

70 State Street.

ADDRESS ON GENERAL SURGERY—SURGICAL PROBLEMS.

DRAINAGE—RADICAL CURE OF HERNIA BY OPERATION—APPENDICITIS.

Delivered before the American Medical Association at the Forty-fourth Annual Meeting held in Milwaukee, June, 1893.

BY H. H. MUDD, M.D.

ST. LOUIS.

The exact clinical value of surgical procedures can not be determined by individual opinion, and statistics are often misleading. New ideas are quickly tested in the hope that they may solve some of the old problems. However brilliant new theories in surgery may appear, they often find very narrow limits in the practical work of the surgeon. Many of you are not surgeons, yet every one is interested in surgery and its problems.

Old questions—of universal interest and general importance still have their lines of use and abuse ill defined.

The authoritative teaching of many surgical writers suggest that all surgical problems are either satisfactorily solved or will soon find definite solution through the new facts so persistently presented for consideration. Original research and experimental operations have done so much for modern surgery that we are loth to admit that any good can come from the consideration of things not new. Yet many so-called brilliant discoveries and fashionable fads in surgery could have been eliminated from the legitimate field of surgical endeavor by the exercise of common sense and moderate caution.

It might astonish one not thoroughly familiar with the practice of medicine and surgery to know that the question now most prominently before the surgical mind is one which has been discussed and considered by surgeons for centuries.

Surgeons who are familiar with the history of the use of drainage in the treatment of wounds must recognize the fact that the simple details of the management of wounds are shifting and uncertain quantities. Authoritative teaching, plain, blunt dogmatic statements are impressive and convey definite ideas to all of individual work and opinions, but they may not express general facts in medical or surgical practice.

The question of drainage and drainage tubes has been under discussion by the leaders in surgical work for many generations. For the past twenty years the data for the solution of the problem of its proper place in surgical practice have been rapidly changing and becoming more definite.

Surgical cleanliness has taught us that drainage is not essential to the rapid healing of grave and extensive wounds. This advance has clearly defined a marked difference in the object to be obtained by primary and secondary drainage. No intelligent surgeon is ready to discard the use of secondary drainage in suppurating wounds, but there are many who assert that they do not use it in fresh, clean wounds, no matter how extensive they may be. The interest in the controversy has been narrowed down to the use or abuse of drainage in operative wounds which are clean and aseptic. It must be awarded a new place now, when perfect cleanliness is supposed to accompany every fresh wound.

It was an essential in the treatment of all wounds of any size in pre-antiseptic days. It has held its

place fairly well during the past twenty years while antiseptic surgery has been readjusting the technique of all operative procedures. Old operations have been discarded and new ones devised, but the drainage tube remains with us seeking a new position at the hands of individual surgeons.

Union by first intention may be expected in a clean, incised wound not irritated by applications, with hemorrhage controlled, with perfect approximation of the divided tissues and with the individual rest and the injured tissues immobilized. Two essential factors must be added to the ideal wound to secure this good result, viz: a vital power in the individual sufficient to insure the establishment of nutritive processes and a proper resisting power of the parts involved in the wound. It may be said that the two latter conditions are necessary to heal a wound by granulation. This is true, but conditions of nutrition are changeable, and the patient who to-day is depressed and with no recuperative power, may in a few days be in a condition to supply sufficient pabulum for the healing of a wound not only by first intention, but by the still more exhaustive process of healing by granulation. Drainage here would be a safeguard.

Can we dispense with the drainage tube in all so-called clean wounds? I think not. Antiseptic surgeons assert that every operative wound can be made aseptic, and by a proper technique union by first intention can be secured. What are the conditions to be fulfilled to attain this end with a patient in fair general condition?

1. An incised wound.
2. A thorough hemostasis.
3. A perfect approximation.
4. The immobilization of wounded surfaces.

In traumatism the first condition is very generally absent, though the wound will frequently heal promptly notwithstanding the contusion and laceration present, for the vitality of the individual and the local resisting power are apt to be of the best.

The second condition is not always to be obtained easily. Ligatures must be applied, oozing controlled by forceps, by pressure or by firm sponging, and the surface must be left free from blood clots. The rough handling of the tissues necessary to attain this condition devitalizes the surface of the wound. The prolonged effort to control oozing of blood, the numerous ligatures required to check all bleeding points, and the irritation of the tissues occasioned by the effort to check hemorrhage sufficiently to insure the wound against effusion and coagulation of blood is no doubt often more disastrous to primary healing than the use of drainage.

The time required to accomplish thorough arrest of bleeding is a matter of serious import to the patient in many operations. It prolongs anaesthesia, and this is one of the dangerous conditions in many of the capital operations where the circulation is disturbed and the nervous system depressed. Many patients die, not from the immediate effect, but from the influence of the depression which follows its prolonged use. The bruising of tissues, the pressing into the tissues of germ laden dust, the longer exposure of the open wound, all make less perfect the asepsis which even the strongest advocates of antiseptic surgery admit is not an ideal condition, but is only accomplished in a relative degree. It is a practical asepsis, not an absolute one.

The perfect approximation necessary to promote the prompt agglutination of the severed surfaces by the use of the buried sutures is not attained without loss of time and further injury to the tissues affected. The buried suture is an essential factor in the perfect approximation and support of large wounds which is necessary to secure primary union.

The immobility of the injured tissues can not always be assured.

Healing without drainage is the ideal wound treatment, but like many ideals, the effort to obtain it is too expensive to the patient to make it always desirable. The antiseptic surgeon claims that there is great danger of infecting the wound through the drainage tube, yet in any wound where the conditions necessary for healing by first intention pertain, the tube can be removed within thirty-six hours, and with a little care it can be so arranged as to be accessible without disturbing the deeper dressing. There is less danger of infection through a drainage tube used for primary drainage and promptly removed within two or three days than there is in the retention of serum and blood with the few dust germs which will adhere to the surface of the wound in the operating room. These will be washed away with the serous oozing that is carried off by the tube. The wound surface being dry, not irritated by retained blood and serum, will be able to care for any moderate infection of the wound. The phagocytes of Ketschnikoff will be in condition to destroy any isolated colonies of bacteria which may have been left on the fresh wound surface.

The infection of a wound through a drainage tube may be and is difficult to avoid where its prolonged use and frequent cleansing is necessary, or if used for the secondary or pus drainage. It should be easily prevented by those who are so strong in antiseptic methods as to be sure of perfect antiseptics in every fresh wound, where it is removed from the wound after twenty-four, thirty-six, or forty-eight hours. Much confusion has arisen in the vague conception of the time necessary to effect primary drainage in a fresh wound, many surgeons retaining it so long as any secretion oozed from it. The drainage tube is an irritant and will maintain a discharge, but its purpose as a primary drain should be fulfilled in at most sixty hours.

Subcutaneous exudates, or blood clots may be cared for by the healthy tissue which surrounds them, but it is always at the expense of time and a certain amount of sapremia or septic intoxication. Often the tissues are overburdened and remain for a long time inactive in the face of such a condition. A large incised wound with skin securely closed and every avenue for the escape of blood or serum cut off will often show the swelling and cedema that tells of the existence of a serous exudate which has infiltrated the tissues about the cut surfaces, or has separated them so as to form a pocket filled with serosanguinolent fluid. This must be absorbed or decompose, or it determines suppuration. This condition tells of added work put upon the injured tissue because a drain was denied by the surgeon. The frequency with which extensive wounds will heal without primary drainage will depend very much upon the gentleness, the patience, the methodical habits and the tact and skill of the surgeon. Sir Spencer Wells in his wide experience in abdominal work rarely used drainage. Modern

operators, in the same department of work use it more freely than do any other class of surgeons.

It is true that tubal surgery has brought the surgeon more frequently into contact with pus than when he dealt chiefly with abdominal tumors. Yet I believe the painstaking care with which Sir Spencer Wells cared for the details of hemostasis, the toilet of the peritoneum and the replacement of parts enabled him to accomplish something of the same result that is now secured by the use of drainage by modern gynecologists. Practical refutation of the danger of the drainage tube is given by Tait and others, yet careful experimental research has shown that it is a difficult matter to maintain a drainage tube aseptic, when its prolonged use necessitates frequent dressings of the tube. Theoretical and clinical considerations incline me to the opinion that the presence of a drainage tube, in fresh wounds for twenty-four or forty-eight hours, protected as it is by antiseptic dressings, is a much safer proceeding than to overburden the wounded surfaces with the absorption of bloody serum which serves as a matrix for bacterial growth. The tension of the tissues in such a wound irritates and disables the tissues from effective phagocytic action. I believe the establishment of the conditions necessary to the healing of all fresh wounds by first retention without drainage, is accomplished at the expense of so much time, and such injury to the tissue that the drainage tube in many of the larger wounds and more serious operations is a conservative and protective measure. Soap, water and heat excluded, I should be more willing to give up all antiseptics than to dispense with the drainage tube, yet it can now more nearly be eliminated from practice than ever before and its use for primary drainage is largely limited by antiseptics, asepsis and buried sutures. Its gradual elimination from use in fresh wounds is one of the distinct advances of the day, for it can be safely dispensed with in many extensive wounds and should be excluded from the treatment of minor surgical operations when the wound is clean, the hemorrhage is controlled, the approximation is secured and the rest of the part is insured.

Another problem quite as old in surgery as drainage is still before us in the possibility of securing the permanent surgical relief of hernia. Are we in a position to warrant us in urging the operation upon those afflicted with rupture?

A permanent cure in children is established in many cases by the restraining influence of a truss. In individual cases where this permanent retention of the herniated viscus is possible during childhood it should be given a full trial before resorting to operative measures since they are still uncertain in their results.

The cure of hernia in adults by truss wearing is an improbable event, and should not influence the decision against operative relief.

Surgical relief is offered by many surgeons to the patient with rupture, but the multiplicity of methods still advocated to secure a radical cure attest the fact that the problem has not been satisfactorily solved. Individual operators have changed the details of their peculiar method so often that as yet no one can be said to have finally determined the mooted points of theory or practice.

There are so many factors entering into the problem that the statistics do not even give an accurate

estimate of the immediate mortality. The wide difference in the character of the cases selected for operations by different surgeons make the statistics misleading, not only for determination of the mortality, but still more so for establishing the percentage of permanent cures. The mortality is, however, so low, about 1 per cent. that it justifies the operation if a majority of the cases are permanently cured. I have no doubt that relapses are more frequent than any tables so far published would indicate. The difficulty of obtaining the ultimate result in any individual list, or in all of the operations performed is too great to have permitted any accurate percentage of relapses to be established in the few years which have elapsed since new operative methods have been practiced.

Permanent recovery follows operative effort, I believe, in from 60 to 80 per cent. of the cases. Even the lower per cent. justifies continued operative effort.

It is not my purpose to discuss the merits of the different operative procedures. They are too numerous and the details too complicated to warrant such an effort. We may, however, review some of the points in question.

McEwen alone advocates the retention of the sac. Nearly all surgeons remove it. It is agreed that its obliteration is necessary to secure a good result. The origin of congenital hernias, and of many acquired cases has been ascribed to the pouch formed in the peritoneum at the internal abdominal ring. Efforts have been made to prevent any puckering of the peritoneum at this site by cutting off the sac high up and placing the ligature so high that the tension on the peritoneum will prevent the pouching. Others sew the edges of the peritoneal section so that a line only may remain as a cicatrix at the site of its removal. The neck of the sac having been ligatured, is by others carried away from its normal position and fastened by suture to the abdominal wall. The peritoneum may be pulled down from one side of the hernial opening so that when the ligature is placed and the sac cut away the tension of the peritoneum will pull the puckered cicatrix to one side. I can not conceive that one method is much superior to another. The simple ligature placed well up on the peritoneum above the neck of the sac is as efficient as any; for the pliable peritoneum will follow the irregularities of the abdominal wall very closely.

If the funnel shaped pouch formed in the sac at the internal abdominal ring favors the development or the recurrence of hernia the more important point in guarding against its reformation will be found in destroying the normal irregularity in the abdominal wall formed by the transversalis fascia and the muscles at the internal abdominal ring. This can be most efficiently done in the effort to give new strength to the parts involved in the hernia by a removal of the cord to a new point for its passage through the abdominal wall and in the efficient approximation of the fasciæ, the muscular, and the aponeurotic tissues of the diseased inguinal canal.

How can we maintain an opening for the transmission of the cord, with a minimum of weakness at the site of the canal? There are many reasons to think that Lucas Champaniere is right when he asserts that the restoration of the canal is an important matter. McBurney practically says the same thing when he closes the wound by granulation

tissue. Halstead suggests the same as a fact. R. Frank proposes to carry the cord through a groove in the pubic bone. Lucas Champaniere appears to be indifferent to the situation of the point of emergence of the cord but brings it directly through the muscular and aponeurotic wall to the subcutaneous cellular tissue whence it descends covered only by the skin and cellular tissue to the scrotum.

The liberty thus taken with the position of the cord may enable us to bring it out through some stronger part of the abdominal wall, preferably to the outside of the canal near Ponpart's ligament, though in some cases it may be better to carry it well in toward the median line.

The strengthening of the wall by the union of the tissues forming the canal through which the hernia escaped will vary much in its details, for the conditions are very different in the two classes of cases designated by Champaniere as the hernias of strength and the hernias of weakness. The atrophied relaxed wall requires very different treatment from the thick muscular one. The union of the tissues of the weakened abdominal wall should be sought by primary union. This gives, I think, better resisting power to the tension always present on the pliable abdominal wall than the scar tissue formed by granulation or suppuration.

There are many conditions which affect the tissues involved. The age, the sex, or the obesity of the patient, as also the degree of atrophy produced by truss pressure, the size of the hernial opening and the age of the hernia will necessarily modify the method of approximation. The individual skill of the operator in meeting these conditions will not only determine changes in method, but will also influence the ultimate result.

Buried sutures are essential. Permanent sutures as of silk or silver wire have their advocates, but they can not give permanent support to the part and must soon become an irritant, and will weaken the wall by inducing absorption or exciting the formation of cicatricial tissue at the expense of normal structures of better resisting power. If union by first intention fails the silk is likely to become infected and require removal.

Animal sutures appear to fulfill every need of the surgeon. The chromotized gut or kangaroo tendon will give good support during the time required for the solid healing of the parts. The tissues of the inguinal canal should be securely approximated, muscle, fascia and tendon being utilized to make a thick, firm line of union. Healing by first intention is desired. The extensive dissection and laceration of the loose connective tissues necessary in many cases of hernia where the sac is large and is thoroughly removed, make the use of primary drainage occasionally a wise precaution.

We conclude:

1. That the mortality should not deter us from encouraging the operation for the radical cure of hernia.
2. The percentage of permanent cures is sufficient to justify it.
3. The removal of the sac is an essential feature of the operation.
4. The approximation of the tissues in the weakened abdominal wall is no less important.
5. The surgeon can not urge the operation in every instance, but may perform it in the great majority

of cases of rupture where a truss does not satisfactorily control the hernia.

A problem of equal interest to drainage or the radical cure of hernia, is presented in a modern question in surgery, viz: the "treatment of appendicitis." This subject is one in which American surgeons are particularly interested, for its present clinical importance has been demonstrated by their clinical work; notably by Sands and McBurney.

The treatment of appendicitis is still an open question. The care of the individual case offers choice of lines of treatment which make most difficult a decision. The anatomical and clinical investigations of the past few years have demonstrated very clearly that the American idea of the pathology of inflammations in this region is correct. Primary inflammation of the appendix is frequent, and it produces not only an ulceration and destruction of the organ with a circumscribed or diffuse peritonitis, but it also frequently determines a perityphlitis and a typhlitis with engorgement and thickening of the walls of the ileum. I think we may fairly assume that the vast majority of the inflammatory affections of the right inguinal region originate in the appendix. These inflammations result not so much from concretions in the appendix as from irritative catarrhal or obstructive conditions which produce engorgement of its mucous surface and thickening of its wall. The inflammation in the appendix may arise from a small lumen, from a catarrhal congestion of the mucous membrane, from disturbed circulation resulting from a bend or twist, or from the pressure of a distended bowel. Irritative fluids with the presence of the bacterium coli frequently excite inflammation in it, so also does fecal matter or a foreign body. Now if we remember the uncertain anatomy of this organ, its varying length, the wide difference in the size of its communication with the colon, the length of its mesentery, its fixed or its free position in the cavity, we must know there is not only a great difference in the origin of the inflammation, but also in its termination.

The full distended appendix may excite pain and distress accompanied by an inflammation which will suddenly disappear on the escape of its liquid contents. This might occur when a small lumen or a twist was the source of the distension. Catarrhal congestions or thickening of the mucous lining may be evanescent and temporary in character.

A full colon and a distended ileum may press upon the appendix and determine an inflammation which will subside with the emptying of the bowel.

A foreign body in the appendix, or an ulcer may slowly establish a perforation of the organ without giving a previous history of inflammation, and without much pain.

The circumscribed peritonitis excited by it may arrest the action of the ileum and the colon and by agglutination of the parts establish a tumor with doughy, elastic outlines that suggests an intra-peritoneal abscess. This tumor may disappear as the peritonitis subsides and the muscular wall of the bowel again resumes its action. These peritoneal adhesions may insure a cure by limiting an intra-peritoneal abscess and guarding against the diffusion of the infection which would result from the perforation of a free appendix. An ulceration or a gangrene of the appendix together with a perforation of the adjacent colon and the establishment of a vent

for the abscess through the intestinal canal may give a favorable termination. The inguinal tumor doughy, elastic or fluctuating, may disappear without operative interference, or produce death by the escape of its contents into the general cavity. The free appendix, though giving but slight evidence of inflammation, may discharge its contents into the abdominal cavity and produce death within a few hours of the first warning of trouble. A severe colic with its attendant symptoms of pain, nausea and local tenderness, or the distinct evidence of a circumscribed peritonitis may attend a case which rapidly recovers not only from the immediate attack, but remains perfectly well.

A temporary and evanescent, or prolonged and severe inflammation may ensue in attacks of appendicitis where the initial symptoms and the history of the disease are much the same. The danger of the attack, difficult as it is to prognosticate, is rendered still more uncertain by the situation of the appendix in the individual case.

If the appendix is behind the head or body of the colon it will very generally, if ulceration and supuration be established, develop an abscess after peritoneal adhesions have cut it off from the general cavity of the peritoneum. It then kindly awaits the action of the surgeon. Large well circumscribed abscesses may develop about the appendix even where it is long and hangs in the pelvic basin.

Joseph Bryant and I. Turner have contributed some suggestive anatomical facts which help us to a solution of the clinical problem presented in appendicular inflammation.

The important general deduction appears from these investigations that the appendix is held in close relation with the cæcum and colon and the posterior abdominal wall in about 30 per cent. of the cases.

This leaves 70 per cent. of the cases in which it hangs somewhat freely from the colon and is more intimately in contact with the small intestines. It hangs free. The position of the appendix is determined by the character of its mesentery, its length and bulk, as well as by adhesions.

Clinical observation sustains the belief that the inflamed appendix which presents toward the median line or in the pelvic basin is more dangerous to life than when it comes into more direct relation with the colon and iliac basin. The freely moving small intestine does not so quickly become adherent. The adhesions are not so firm. The long, free appendix is perhaps more liable to the slow and painless ulceration processes that sometimes precede the sudden rupture and escape of contents into the peritoneum before adhesions have shut off the general cavity. The abscess when well formed is more likely to rupture because of the pliable wall formed by the small intestines which is its chief enveloping tissue, and on account of the influence which the change of position of the body has on its outline. The impulse of coughing, the movements of respiration, the distended bladder and the inflated or compressed intestine all become active agents in determining the results of the progress of the inflammation of the free appendix.

The appendix, as far as clinical observation determines, inflames more frequently in the 30 per cent. of cases in which it is held in close relation with the colon than it does in the 70 per cent. of cases in

which it is surrounded by the small intestines and presents towards the median line and away from the colon and the iliac basin. The enveloping tissues forming the wall of the abscess which is developed about the appendix when situated behind or outside of the colon is derived chiefly from the colon and the posterior and lateral abdominal wall of the iliac and the lumbar region. Here the danger of delay is not so great as in the free appendix, for the abscess formed is more likely to await the timid action of the physician or the dilatory surgeon.

Recurring attacks of the disease, the frequent sudden deaths which result from such attacks assure us that there is grave danger in waiting either for the recession of the inflammation or the development of the well defined abscess.

There is no symptom nor yet any group of symptoms which will in the early history of appendicitis determine the absolute necessity for operative interference. Severe, suppurative, destructive cases recover without operation. Fatal results assure us that danger is concealed in many of the apparently less grave conditions.

Pus, to the general surgeon, is a strong temptation to cut. It should in nearly every instance be evacuated. Yet clinical experience must have taught many of you that the inflammatory area is more clearly defined and less diffused, the adhesions firmer, and the general condition better suited to operative interference in the cases of appendicitis after the abscess is well circumscribed than when the pus is first formed. The congestion and the irritation of the peritoneum in the beginning of the attack is often great and makes the tissues intolerant of further traumatism.

I can not see the way to a definite rule of action. Prompt action is most important where the free appendix is inflamed. The surgeon rarely has an opportunity to operate on any case prior to the rupture of the appendix or the development of the abscess, with the formation of adhesions which cut off the appendix from the general peritoneal cavity.

These conditions are usually promptly established. The general infection of the abdominal cavity comes, I think, more frequently from the rupture of the appendix before adhesions have formed than it does from the escape of matter from the circumscribed abscess. Yet both conditions are pregnant with danger.

If a definite rule for action must be outlined, then logical deduction and clinical experience will demand an operation in every case of appendicitis, or it will deny operative interference until perforation has occurred or an abscess has formed and is seeking exit by an external opening.

The first alternative is very properly denied the surgeon. Many patients, if a fair statement from present clinical experience is made, will decide against the operation in the early stages of the disease. Yet the safe operation is only made early in the disease or after it is well advanced and the abscess clearly defined.

The intermediate time is one of danger to the patient and anxiety to the surgeon. It covers the time of the beginning peritoneal inflammation. It is difficult or impossible to determine whether this inflammation in its earlier stages is diffuse or local and circumscribed—operative interference at this time is hazardous and uncertain, yet it is often de-

manded by the necessities of the case. The physician, however, often carries this responsibility and the surgeon only sees the case when all doubt is removed, or sudden death or rapid recovery terminates the case without surgical interference.

Action or non-action in a case of appendicitis where a well defined abscess has not already formed will be determined very largely by individual judgment and the clinical experience of the surgeon, though I believe early operations add to the safety of the individual.

The problem then is still remanded not only to the surgical judgment of the profession, but also to the domain of clinical medicine for its solution and the formulation of a definite rule. Statistics deceptive as they are, must slowly determine the line of safety.

When Sir Joseph Lister demonstrated the surgical value of absolute cleanliness he gave to the world the key to the present status of surgical science. He gave the impetus to the wonderful advances of the past twenty years in the present precision and certainty of operative measures. Surgical cleanliness means the establishment of aseptic conditions. The use of soap and hot water are the essential elements of success, but it remains a practical fact that asepsis can not be uniformly obtained and maintained without the use of antiseptic agents. The most important of these agents are moist and dry heat, though sublimated solutions and carbolyzed washes add to the security and the facility with which asepsis can be established. The influence of antiseptics was so powerful and far reaching that surgeons forgot that any other condition entered into the determination of the result. The vital resisting power of the individual patient as a factor in the case, became a minor quantity. Nature's laws are, however very persistent and the individual has gradually asserted his rights again and will soon re-establish himself as an important factor in the solution of the problem of safety in surgical procedures.

The perfect antiseptic state or an ideal asepsis is only to be obtained in the laboratory. Nearly every wound is accompanied by bacterial infection. Practically a clean wound is attainable, for a moderate degree of infection is easily met by nature's provision for the general and local protection of the individual.

The fate of wounded tissue, whether the injury be inflicted by accident or purposely, depends upon three factors:

1. The vital power in the individual.
2. The condition of the parts involved.
3. The amount and character of the bacterial infection.

The mysterious individual power has ever been a potent agent of confusion and of strength to the surgeon. It has won many battles for him when ill advised surgery has threatened its destruction. It confounds him with death when every possible avenue for its perverse expression has been guarded. It enters the surgical problem with the nervous anticipation which long precedes the use of the knife, and finds a pronounced expression of its influence in the shock produced by injury by operation—or mental emotion. It does not cease to proclaim its power until months and years of suffering make us wonder whether it pervades with independent life every atom of the worn and tired body. It is snuffed out of the strongest and most vigorous body with a whiff of adversity, and it persists in the weak and worn until

we admit our ignorance and our impotence. Careful search for local disease and the sources of auto-infection has eliminated many of the uncertainties of this first factor.

Biological science has explained the development of local inflammatory action or its absence at the site of the wounded area by the activity of bacterial infection or its suppression and nullification by the local resistance established through the phagocytes of Meechinkoff. The phagocytic action of the cells in a wounded area supplement the surgeon's efforts for antisepsis, and make possible the grand success which has attended the enforcement of aseptic methods.

The immunity from danger thus assured by nature from a moderate infection should encourage every surgeon to continued efforts to make as perfect as possible all procedures which tend to establish aseptic conditions, for this third factor in the safety of surgical operations is clearly put within his control. The methods of infection through the wound and the details of asepsis are so well defined that we are fairly accountable for any undue infection thus established.

Aseptic conditions have given a security and a certainty to operative measures which has encouraged a marvelous increase in surgical work. Discarded operations have been revived. New operations are abundant. Regions of the body heretofore held sacred have been triumphantly invaded. So great has been the success of the operative surgeon and so easily is it attained, that many poorly equipped with knowledge and deficient in experience have met with such success in special lines of work that they have lost sight of conditions which must ever remain important constituents in the higher success which should attend the surgeon and the pathologist. Many of the special surgeons who have obtained well earned and well deserved recognition and honor have been something less than the good physician and surgeon; not something more. The better ones develop a more profound knowledge of the needs of frail humanity as their experience widens and their work becomes more general.

The grander success and the more lasting renown must attend the surgeon who considers not alone the possible extent of his invasion of the body, and while remembering not only aseptic possibilities, does not ignore the two cardinal principles of surgical practice, viz: the vital power of the individual and the local resistance of the tissue involved. Have we been lured beyond the legitimate fields of surgical endeavor by the grand success achieved in the operative triumphs of the past two decades? Have we lost sight of our personal responsibility in our zeal to widen the province of our usefulness? No! This personal responsibility is greater than ever before, for an increased number of the conditions necessary to success are clearly defined and placed well within his control. There is moreover no textbook of surgery extant which reflects the surgical judgment of the day. The work of yesterday is set aside in the wonder of to-day, and each worthy worker has become a law unto himself. It is vain for societies to pass ordinances and express judgments. The march of progress is so rapid that they are forgotten or stand as a condemnation of the men who favored their expression.

Individual responsibility is great: the man of so-

called advanced work, the radical in his specialty, is open to the severest criticism for subjecting every general consideration of human welfare to his special dictation. So also is condemnation due to the individual surgeon who lingers with the traditions of his master and hesitates to give to his patients the benefit of recent surgical advances, though he carries with him the profound truths which underlie and must ever control human life. Many modern operative efforts may not stand the test of time nor accord with the rights of humanity, yet they have worked wondrous benefit to man. The power of precedent and of authority offers us no retreat from individual responsibility, for you can find recorded authority on every side of a given question. The halting, uncertain surgeon is as justly criticised as his more bold and reckless neighbor. Our individual responsibility is great, and almost absolute in individual cases. The leaders in the surgical work of the day have no precedent for their work, so rapid are the legitimate changes in the details and purposes of surgical work, and so widely varied is the standpoint from which the individual surgeon views. It is an uneasy time for the conscientious worker.

The three conditions established as factors entering into the infliction of every wound are as varied as the individual, and often assert their importance at most unexpected and disastrous crises. The most expert operator and the most profound surgical philosopher, though every known factor within his knowledge and control favor success, is occasionally forced to acknowledge defeat and admit death, a foe more dire than the disease attacked. Hence it is only serious disease that should command grave surgical procedure.

SOCIETY PROCEEDINGS.

American Surgical Association.

Buffalo, N. Y., May 30 to June 1, 1893.

(Continued from page 644.)

The use of plaster of Paris dressing is one of the most important elements in the treatment of compound fractures. To hold the parts at absolute rest there is nothing equal to plaster of Paris. There seems to be something beside the absorption power of the plaster which lessens the tendency to decomposition.

Dr. G. M'Lane Tiffany of Baltimore, did not see how the ferrules could be used with advantage in comminuted fracture. The application of the ferrule in these cases is liable to cause separation of some fragments which might otherwise unite. In the three cases reported the ferrules seemed to be used simply as an adjunct to other methods. There is no method applicable to all cases and often the method can not be decided upon until the fragments are exposed. In cases where there has been much loss of bone the use of the ferrule does not seem applicable. In such cases the steel splint with steel screws had been in his hands the only method of holding together the fragments. In compound comminuted fracture the fragments may be placed in position with the fingers and held in place by the plaster of Paris bandage. It did not seem to him that the case had been made out except that in certain instances the method described is a good adjuvant, but that it is so in many cases, I should be inclined to doubt.

Dr. M. H. Richardson of Boston, said that in most cases of ununited fracture treated by the application of silver

wire, recovery follows satisfactorily. He thought that the same is true from the use of ivory pegs. Occasionally, as Dr. Senn advised, the application of the ferrule is of service and is a rational method. He reported a case of transverse fracture of the humerus operated on several times by silver wire sutures but without securing union. In such cases where it is desirable to keep the bones from slipping transversely, the method of Dr. Senn will answer a useful purpose. In ununited fracture with extensive loss of substance the periosteum and medullary cavity do not come in contact and I do not see how this is provided for by the method described.

Dr. J. Collins Warren of Boston, had also operated on the case referred to by Dr. Richardson, but the lack of union was due more to the condition of nutrition than to failure of mechanical appliances. The patient is five feet, eight inches in height and weighs 300 pounds. At the suggestion of Dr. J. J. Putnam, the patient had recently been put on the use of thyroid juice. During three weeks' treatment the patient had lost ten pounds, but the method had not been continued sufficiently long to determine what the ultimate result will be.

Dr. Jos. Ransohoff of Cincinnati, asked if Dr. Senn intended the use of the method he had described to do away with the use of external appliances?

Dr. N. Senn of Chicago, said that his remarks had been misunderstood. He did not protest against the use of external support nor did he charge this with the production of permanent damage. He had alluded to continuous extension for six or eight weeks as being productive of such results. There is no method of direct fixation and probably never will be, that will render external mechanical support unnecessary. All that he wished to overcome was the tendency to lateral displacement and to bring by such direct means similar anatomical structures into mutual contact and hold them there. The angular deformity and rotation can be overcome by the use of plaster of Paris bandages.

Adjournment of morning session.

AFTERNOON SESSION.

Dr. J. Collins Warren of Boston, read a paper entitled
HYPERTROPHIES AND DEGENERATIONS OF CICATRICES AND
CICATRICAL TISSUES.

The evolution of cicatricial tissue was first traced. Lymphatics are not usually found and nerves are rarely seen in scars. Scars rarely disappear entirely. They usually remain as a fine white line, or if the scar has stretched, as a band. Scars grow in proportion to the rest of the body. This point is not sufficiently borne in mind when performing operations on children in exposed portions of the body.

The most striking peculiarity of scar tissue is its tendency to contract. During the healing process this acts in a beneficial way. It is also the cause of the most marked deformities. This contraction of cicatricial tissue is not due to any specific contractile quality in the tissue itself but to the absorption of new formed tissue. Scars are not ordinarily painful, but may become the source of pain by adherence to structures which are sensitive.

Among the most common pathological conditions observed in scars is that hypertrophic condition known as keloid. There has of late years been a growing feeling that keloid tumors spring from cicatrices more frequently than has been supposed. True keloid is found on the chest and is an extremely rare form of growth. It seldom disappears. False keloid may develop in almost any part of the body.

Cancer not infrequently forms in cicatrices, usually after the cicatrix has existed several years.

Calcareous degeneration of a cicatrix has been reported. A common form of complications in the life history of scars

is suppuration, which may be due to re-infection or to the awakening of spores which have long been dormant. A most common form of relapse is due to tuberculosis.

A description of the cicatrix which forms between the Tiersch grafts and the subjacent tissue was given.

Every effort should be made to limit the development of scar tissue. Animal sutures should be used if they are to be buried. Very superficial sutures should be used freely. The checking of the superabundant growth of granulations has been strongly recommended as the contractility of the cicatrix is largely dependent upon the amount of granulation tissue which becomes organized. For projecting scars compression has been recommended. This will often relieve the redness as well as the elevation. Unna advises friction with sand in the treatment of depressed scars. Pigmentation of scar from gun powder may be relieved by scrubbing with nail brush under ether. In older cases the particles of powder may be removed by the punch devised by S. J. Mixter for this purpose.

The treatment of true keloid is discouraging on account of the persistence with which it returns. If excision is attempted, the incision should extend one or two cm. beyond the limits of the disease and extend to the muscular aponeurosis. Compression is recommended by many writers for the treatment of false keloid. As keloid is a connective tissue structure it is possible that an inoculation with the virus of erysipelas might produce absorption. Whether such a powerful remedy would be justifiable is doubtful. Tiersch grafting may be employed with advantage to broad and flat cicatricial keloids. A case was reported in which this method had been employed, and thus far (several months) there had been no return of the tumor.

Discussion.

Dr. George R. Fowler of Brooklyn, described the pathological anatomy of cicatricial and spontaneous keloid. The fact that keloid more frequently follows wounds in which there has been much suppuration suggests a microbic origin. In regard to epithelioma developing in cicatrices it was noted that it has a tendency to spread upon the surface and rarely passes into the depths of the tissues. In the treatment of this condition there should be early and radical extirpation.

Dr. G. M'Lane Tiffany of Baltimore, said that in the southern States keloid was exceedingly common, but he knew of it only as a cicatricial disease. He had never seen a case of so-called non-cicatricial keloid. In the negro the disease is prone to undergo retrogressive changes after the age of forty or forty-five years. The affection rarely occurs before the age of eight or ten years. In the white race it may be confidently expected that keloid will go away or not much progress after the age of twenty-five years. The case of a girl who at the age of seven years was severely burned on the face, breast and arm was reported. She was seen by the speaker eighteen months after the accident. At this time the scar was bright scarlet and one-half inch in thickness, resembling a heavy plate of cartilage. The advice was to let it alone. Twelve years later there was a white perfectly mobile scar. The speaker was inclined to think that operative measures in young persons, either white or colored, are unwise.

Dr. M. H. Richardson of Boston, remarked that in cases of abdominal incisions it was important to bring the parts together so as to secure union by first intention. In open wounds that heal by granulation there is a great tendency to hernia.

Dr. J. Collins Warren, in closing the discussion said that the point which had impressed him was the absence of contractility in the scar tissue which formerly was believed to

exist. It is absorption that produces the pullings. The scar tissue itself yields before pressure. Therefore the importance of accurate coaptation not only to make the scar small, but to have no scar at all, and have regeneration instead of repair.

Dr. M. H. Richardson of Boston, read a paper entitled
SURGERY OF THE GALL BLADDER.

The paper was based largely upon personal experience. While the field is most brilliant and promising, anatomical and pathological considerations give it distinct limitations. It is seldom possible to cure or even relieve malignant diseases involving the gall bladder, or gall ducts. With a few exceptions, operations are of questionable value in most cases of chronic obstruction to the bile flow from causes other than stone.

A gall bladder may be much enlarged, its functions may be entirely destroyed and it may contain a large number of stones without causing any symptoms. While it is justifiable to relieve this condition of simple dilatation to avoid possible future complications, interference is not essential in the absence of pain and of local and constitutional disturbances.

Impaction of the common duct results in universal jaundice which may be a pronounced and fatal cholæmia. The gall bladder and biliary passages become distended, perforation frequently occurs with escape of bile into the peritoneal cavity and death; or a spontaneous cure follows rupture into the intestine, the stone remaining fixed in the canal. At other times the stone makes its way by ulceration into the intestine and permanent recovery takes place.

Operations on the gall bladder and biliary passages should not be undertaken until every means at our command to make a diagnosis have been exhausted. Unnecessary explorations should be avoided. In some cases the presence of malignant disease or other fatal organic disease can be shown clearly enough to justify a policy of non-interference. The anatomy of the region of the gall bladder was carefully discussed and illustrated by diagrams. The point recommended for exploratory incision by the author is just to the right of the rectus muscle, opposite the tip of the cartilage of the tenth rib. Here the abdominal wall consists chiefly of skin and fascia. An inch and a half opening is sufficient. If subsequent procedure is required the opening may be continued upwards along the border of the rectus muscle and outwards parallel to the border of the ribs.

Operative Surgery of the Gall Bladder.—Gall stones limited to the gall bladder being the most frequent occasion for surgical interference, cholecystotomy is the most common of the surgical procedures. In the normal condition of the gall bladder it is a simple operation. The gall bladder may be sewed into the wound and incised at once, or opening may be deferred a day or two. The so-called ideal operation where the opening in the gall bladder is immediately closed, is the preferable one where it is practicable. When the gall bladder is contracted so that the fundus can not be brought in contact with the abdominal wound, immediate incision with drainage or total extirpation are the alternatives. Unless we extirpate contracted gall bladders, drainage must be resorted to. For drainage the glass or rubber drainage tube with gauze packing for leakage around it answer admirably.

Cholecystotomy—Extirpation is desirable in certain cases. This procedure should not be attempted unless the gall bladder can be easily separated from adjacent structures. Besides lessening danger at the operation, it shortens convalescence. Yet even after extirpation drainage and gauze tamponage is necessary.

Operation upon the Cystic, Hepatic and Common Ducts.—

There are few conditions of the hepatic duct which admit of operative manipulation. In health it can not be catheterized. When dilated it may be explored through the gall bladder. Stones impacted in the duct may at times be crushed, at other times incision is required. The cystic duct after apparent obliteration becomes pervious at times as soon as the gall bladder is opened. This must be explained by subsidence of inflammatory stenosis caused by long continued irritation of the stones.

Operations upon the hepatic and upon the common duct are indicated when stones become hopelessly impacted in either. The incisions may be closed with suture at times, but oftener this is impracticable. A rubber or glass drainage tube should then be placed in the duct with siphonage and the whole protected with gauze. In no case of operation upon the biliary passages has death followed remotely or immediately as the result of biliary obstruction, and in no case had the author observed septic infection from this cause.

Cholecystenterostomy.—In chronic organic, non-calculous obstruction we must expect chronic and fatal cholæmia until we can provide artificially for the escape of bile either externally or internally. Anastomosis between the gall bladder and duodenum is preferable when possible. Deviation of the bile flow into the colon seems compatible with health and is often more possible than the duodenal route. The anastomosis may be made by Senn's plates, or Murphy's buttons, or mechanical devices may be omitted altogether. The essential point is to have the opening large enough to secure permanency. The contraction after anastomosis must be practically complete to arrest the natural flow of the bile.

If the gall bladder can not be used for anastomosis, the common duct may be isolated and inserted through a slit into the duodenum.

Operations upon the common duct by way of the duodenum may be practiced under very exceptional circumstances.

Obstructions in the hepatic duct above the point of junction with the cystic admit of no relief, except occasionally by the formation of a fistula, although theoretically the duct above the constriction, if long enough, might be inserted into the gall bladder.

The prognosis after simple exploration is good, although it must be remembered that there is considerable mortality in advanced organic disease.

After cholecystotomies, extirpations and operations upon the ducts, recovery takes place in a very large proportion of the cases. In fourteen cases of gall stone including all methods of gall stone extraction the author had had two deaths; one from an unavoidable sepsis and the other from hemorrhage. In six exploratory operations there were two deaths, both cases of cancer.

In most of the author's cases there had been a marked and long continued jaundice. In none had hemorrhage been an important factor at the operation and in but one had there been secondary hemorrhage. He believed that hemorrhage is a real danger in cholæmia but that its frequency and importance have been exaggerated.

Discussion.

Dr. J. Ewing Mears of Philadelphia, referred to the occurrence in gall stone obstruction of symptoms simulating malarial fever, and reported one case in which this was present. In this case there was impaction of the stone in the common duct. This was pushed forward into the duodenum and the removal of the obstruction was shown by escape of intestinal gas through the gall bladder.

In contracted gall bladder where glass and gauze drainage

is required he would be inclined to apply ligature to the duct and allow the gall bladder to remain in place. In that way we avoid the dangers of attempting to remove the contracted bladder. Attaching of the gall bladder to the intestine is indicated in those cases where cholecystotomy or cholecystectomy or ligation of the duct can not be performed.

Dr. Wm. H. Carmalt of New Haven, said that in 1886 he had performed the operation spoken of as ideal cholecystotomy. The patient had previously been operated upon by a distinguished foreign surgeon for floating kidney. The speaker operated under the impression that the case was one of movable kidney but found the gall bladder distended with bile from impaction of a gall stone in the cystic duct. The stones were removed and the wound in the gall bladder closed and the organ returned to the abdominal cavity. The patient made a perfect recovery.

Dr. T. A. McGraw of Detroit, referred to the great liability of the opening made in anastomoses between the gall bladder and intestine or between intestine and intestine to contract. This he thought was due to separation of the mucous surfaces, with the formation of cicatricial tissue and subsequent contractions. He described a new method which he had devised to overcome this difficulty and exhibited specimens from animals illustrating the results obtained. Instead of making a simple slit in the gall bladder, flaps are made and turned back and the peritoneal surface united. Then these flaps are inserted into the incision in the bowels and the acute edges of the gall bladder incision secured to those of the incision in the intestine. There is thus a projecting ring of mucous membrane through the intestinal opening.

Dr. T. F. Prewitt of St. Louis, reported several cases of affection of the gall bladder and biliary passages in which he had operated. He was surprised that the extravasation of bile was not followed by more serious consequences than had been detailed. Another striking fact is that when the bile escapes around the tube it is so easily prevented from further extension by the gauze. In one case he also had operated for supposed floating kidney and found a distended gall bladder. He then closed the lumbar incision and opened the gall bladder through the anterior abdominal wall. A stone was found impacted in the cystic duct. This could not be readily dislodged and as the condition of the patient did not warrant prolonged operation, a fistulous opening was made. Subsequently a second operation was done with the view of getting rid of the stone. It could not be crushed and needles had no effect upon it. It was finally removed piecemeal with the curette.

Dr. Stephen H. Weeks of Portland, Me., reported a case of cholecystotomy which he had recently performed. The gall bladder was found contracted to a very small size. It was incised and a rubber drainage tube with gauze packing introduced. The condition of the patient which before operation was critical at once began to improve.

Dr. De Forest Willard of Philadelphia, exhibited a number of gall stones and the gall bladder removed seven weeks ago. The gall bladder was removed on account of suspected malignancy. Since operation the patient has greatly improved having gained thirty or forty pounds in weight. There was one stone lodged in the duct but this was gently forced into the duodenum.

WEDNESDAY MORNING SESSION.

The session was held at the Buffalo General Hospital where a number of interesting cases were exhibited to the Association.

AFTERNOON SESSION.

The first paper was entitled

SURGICAL TREATMENT OF CERVICAL THORACIC AND ABDOMINAL ANEURISM.

By Dr. C. B. Nanerode, Ann Arbor.

Conclusions.—*Cervical Aneurism.*—1. All methods should be supplemented by recumbency and diet.

2. Proximal compression, when feasible, should always be tried and, where the arterial coats are seriously diseased, should supersede ligation.

3. Needling should supplement pressure when the case is progressing rapidly. Possibly it is advisable in all cases suitable for compression, and is certainly to be employed where this method fails in cases with highly atheromatous vessels.

4. Proximal ligation, having been rendered much safer of late by the use of aseptic precautions, less absorbent ligatures, and the avoidance of all injury to the arterial walls by employing the stay-knot, is permissible when the arterial walls are relatively sound, until experience decides whether or not needling is clearly indicated.

5. Since recurrence after proximal ligation almost certainly results from non-deposition of white thrombi and their maintenance in contact with the aneurismal wall from lack of proper changes of its lining, needling is clearly indicated.

6. Where the location prevents proximal arrest of the blood-current, needling is the best operation; possibly distal compression—rarely feasible—might aid in the deposition of thrombi.

7. For the reasons already given, although occasionally successful, the indications for the permanent introduction of such foreign bodies as wire, horse-hair, etc., into aneurismal sacs are so much better met by needling that such procedures had better not be adopted.

8. The modern revival of the older method of extirpation of aneurisms should not be attempted for spontaneous cervical aneurisms.

Thoracic Aneurism.—1. All methods should be aided by the employment of rest in bed and proper diet.

2. The permanent introduction of foreign substances should not be employed.

3. Needling should be tried, aided by distal compression when feasible during the use of the needles; if this fails distal ligation should be resorted to.

4. Distal interruption of the blood current by simultaneous ligation of the carotid and subclavian arteries may be tried.

5. Needling is indicated when complete or partial failure follows distal ligation.

Abdominal Aneurism.—1. All methods should include recumbency and diet.

2. Needling, when this can be done without injury to the hollow viscera, is the most promising plan.

3. Proximal or distal compression may be tried with or without needling, but to be effectual must be done under anesthetics.

4. The permanent introduction of foreign bodies into the sac is inadvisable. See 7, Cervical Aneurism.

Discussion.

Dr. W. W. Keen of Philadelphia, agreed as to the importance of rest in the recumbent position and restricted diet. He had not as yet employed needling in any case. The method is still on trial. The introduction of foreign substances into the sac does not seem to be altogether logical nor have the results been satisfactory.

Dr. P. S. Conner of Cincinnati, said that he was disposed to look upon operative procedures in aneurism with more favor than he did a few years ago, for the later methods have lessened the risks, and by ligation of the artery you

secure for a time such quietude as can not be secured in any other way.

Dr. T. S. Prewitt of St. Louis, fully agreed with the previous speaker as to the importance of absolute rest and restricted diet.

Dr. Jos. Ransohoff of Cincinnati, in one case of aneurism at the root of the neck had transfixed the sac by two needles, which were allowed to remain ten or twelve hours. This was followed by considerable hardening in the sac. In this case rest could not be maintained. Two weeks after the needle operation was done he left the hospital, and some time later died from pressure of the aneurism upon the trachea.

SURGERY OF THE RECTUM.

By Dr. A. G. Gerster of New York.

The paper was based in part upon the cases treated at Mount Sinai Hospital, New York, during the four years ending January 1, 1893. During this period 557 patients with rectal disease were admitted. 280 of these were classed under the head of hemorrhoids. Next in frequency were fistulae.

Hemorrhoids.—In recently developed and moderate cases depletion of the portal circulation by salines, etc., is often sufficient. In the way of operation, decided preference was given to the clamp and cautery, which was always chosen in the absence of special indication in favor of any other method. After thorough stretching of the sphincter and proper preparation of the gut by adequate laxation, this process has given invariably satisfactory results. Whitehead's or Lange's operation was reserved for the more aggravated cases, characterized by prolapse of the anal or rectal mucous membrane. The results of this operation, if the essential points of the technique are faithfully carried out, are more brilliant and rapid than those of any other known method.

Fistula in Ano and Ischio-rectal Abscess.—118 cases of fistula had been operated upon. The average time needed for cure was eighteen days, and varied from five to sixty-five days. Shortening of the time required for healing was accomplished by a careful excision of the pyogenic membrane of the fistula and immediate catgut suture of the wound in tiers.

Among the forty-nine cases of ischio-rectal abscess there were some dreadful forms of destructive phlegmon of the ischio-rectal connective tissue. Over one-third occurred in diabetic subjects. The treatment consisted in converting the irregular burrows into a simple and shallow, often very extensive wound. This was followed by immediate improvement, and a marked diminution in the amount of sugar in the urine.

Ulcers of the Rectum and Fissure in Ano.—The cases of ulcer were treated by excision and suture with satisfactory results.

Cicatricial Strictures of the Rectum.—Extensive and mostly intractable ulcerative proctitis was observed six times, all in women. In four cases linear proctotomy and gradual dilatation gave moderate alleviation. In two cases inguinal colotomy was done. In one of these cases excision of rectum was later resorted to with a fatal termination due to collapse from acute anemia.

Prolapse of the Anus.—Eleven cases were treated, mostly children of tender age. The linear application of the actual cautery was generally followed by a cure.

Rectal Polypus was treated in seven cases, mostly children, by ligature and ablation. An eighth case, one of multiple adenoma of the rectum, was also treated. The masses were burnt off or tied off by ligature. Four weeks later coccyx and portion of sacrum removed. Rectum was laid open and a number of adenomata high up were removed. The wound

was left open and at subsequent periods other tumors were removed as they formed.

Rectal Carcinoma.—Seventeen cases of rectal carcinoma were observed. Five cases declined operation and in three no operative treatment was considered advisable. In the remaining nine cases inguinal colotomy was done five times with one death. Kraske's excision of the rectum was performed three times with one death, and once the old fashioned perineal extirpation was successfully resorted to. Cicatricial or neoplastic stenosis of the rectum was always considered an ample indication for the performance of colotomy. Colotomy was done as follows: After thorough purgation a longitudinal incision was made two inches to the inward of the left anterior superior spine, beginning two inches above Poupart's ligament. After division of the peritoneum it was attached to the skin by a few silk sutures. The colon was sought for and withdrawn sufficiently to bring the mesentery of the middle of the coil to the surface, then a long shawl pin is passed through skin, peritoneum on one side, then through the mesentery behind the gut, and finally through the peritoneum and skin on the other side. A circular continuous suture is run around the incision. Forty-eight hours later the gut is opened by a transverse incision reaching nearly down to the mesentery.

Discussion.

Dr. L. S. Pilcher, Brooklyn, N. Y., said that in dealing with hemorrhoids he had usually employed ligation and removal, but in the more severe cases had used excision by the Whitehead-Lange method. The results had been so satisfactory that he had not employed the clamp and cautery. Among the disadvantages of the method of excision are the length of time required and the tendency to free bleeding.

In fistula good results had been obtained in a number of cases by dissecting out the entire tract and applying sutures. This is not applicable to all cases.

The speaker had had ten cases of carcinoma of the rectum. In six cases attempts at relief by operation were made. Two of these cases resulted fatally a short time after operation. In the others relief was afforded for a certain length of time.

Dr. H. H. Mudd, St. Louis, said that some time ago he had given up the use of the ligature on account of the pain caused by it, and had substituted the use of the clamp and cautery for a period of two years. He had two severe hemorrhages while using this method, and did not consider it as safe as the ligature. He now uses the ligature in a modified way. He cuts through the portion of tumor on the skin surface and then applies the ligature to the upper portion of the mass.

The cases of cancer of the rectum that he had seen had usually been at a late period. He had done two extirpations by the perineal method with success. He had attempted removal after excision of the coccyx and sacrum without success. In one case he had excised the upper portion of the rectum through the abdomen and made an end to end anastomosis with success.

Dr. L. M'Lane Tiffany of Baltimore, said that in cases of ulceration in cicatricial stenosis he had seen improvement follow colotomy, although the cicatricial contraction in some cases almost completely closed the sutures.

Dr. T. S. Prewitt of St. Louis, held that where inguinal colotomy is done in cases in which there is no hope of restoring the natural passage, it is better to divide the bowel entirely and thus prevent the passage of fecal matter into the distal portion of the intestine. He objected to the closure and dropping of the distal end, for there may be collection of secretions in the bowel which it is desirable to wash out, and this can be done conveniently if the opening is allowed to remain.

(To be continued.)

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MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, JUNE 17, 1893.

THE MILWAUKEE MEETING.

The annual gathering of delegates and members of the American Medical Association was in most respects a success.

As a preliminary, the American Academy of Medicine was largely attended, and the papers valuable, and all looking to the encouragement of advanced preliminary education for the aspirant to the medical course. The usual dinner for the promotion of fellowship among the members was partaken of with gusto.

Immediately after the Academy meeting, the American Medical Editors' Association held its sessions, which were much the largest in the history of this important organization. The president, Dr. J. C. CULBERTSON, delivered the following address:

Members of the American Medical Editors' Association:—We again greet each other in our annual convocation. For weeks and even months our thoughts have ever and anon pictured to us the joys and pleasures of this occasion, so that we are prepared and in a suitable frame of mind to fill to the brim and quaff to the bottom the cup of good fellowship. In our coming together we will also, as largely as possible, profit by a discussion of matters of special interest to our guild.

In our relations with the medical profession we are fully justified in making a claim for recognition as post-graduate educators.

In order to provide graduates in medicine with the best possible conveniences for continuing their courses of study and investigation, that they may attain the greatest possible proficiency in our science and art, it has been found necessary to establish post-graduate schools. These institutions are excellent, and afford admirable opportunities to those who can afford the time and money to attend them, but in the very nature of things they will be patronized by a select few; while for the great multitude of medical practitioners who can not for one reason or another attend these special courses, there is provided a common school education in a post-graduate university system, that is unequalled in its advantages; possessing as it does abundant facilities for imparting instruction by the wisest and most eminent professors, teachers and clinicians in every department of medicine and its collateral sciences.

This best and cheapest of university systems is found in a combination of medical journals. The man who graduates in medicine and does not continue his studies, quickly becomes a musty back number and loses his identity as a progressive, integral part of the medical profession.

The always first in appearance in this combine is the local journal. This publication is and should be a little closer in the affections of every doctor than any other, and should have his practical good will and generous support. This support should extend to contributions to its pages, and which may be very brief; but it should be the bounden duty of every one to at least once a year make his offering in this channel. There should never be a debit side in the subscription list of the local journal, for there is never a time when the local journalist is not doing more for his profession than it is doing for him.

Next in importance in the combine is one or more of the large weeklies. These valuable publications contain an epitome of the daily progress made in our art the world over. Hence their claim to a second place in this university extension system. I need say nothing in commendation of them, for their value is recognized and they speak for themselves. After these two chief pillars may be added the elaborate scientific monthlies, which may be designated as the magazines of our literature. Every number of these periodicals is filled with evidences of culture and exhaustive study. These may be added to the combine according to the inclinations of the practitioner.

From this you will gather that our great journalistic common university extension system is adapted to and meets the every day requirements of every member of the medical profession.

A subject that is always of paramount interest to the members of this Association, is the one pertaining to a discussion of methods that will improve the quality of our journals, and at the same time promote their prosperity.

To the uninitiated it always seems as if the second proposition must be the natural sequence of the first. In other words: the more nearly perfection is attained in the editorial make up, will there be a corresponding appreciation of its contents and consequent financial and literary support on the part of the medical profession.

It is a matter of sincere regret that such is not always the case.

The first thing noticeable in taking up one of our publications of the successful sort, is to observe that it is alive, very much alive, and has a life current which throbs and thrills through its every page from title to fourth cover. Moreover, that its conductor is possessed of a peculiar enthusiasm that is characteristic of his individuality.

Wherever there is enthusiastic life there will be found a ceaseless motion. There can be no such conception as that of a motionless journalism, nor of a journalism devoid of individuality.

Pronounced markings are found in the shaping of the product of each one of a corps of writers. This is distinguishable in the abstracts and translations as well as in the tone of the editorial voice. Even the mechanical make up accords with the contents in its individuality, so that a glance from a distance is sufficient to enable us to recognize by name any one of our hundred publications.

A semi-blind man would never pick up the *American Journal of Medical Sciences* with a belief that it was a copy of *Daniels' Texas Medical Journal*, or the *Medical Mirror* thinking it a *Chicago Medical Recorder*, while there is not a man present who would not if blindfolded and in an unknown dark room, be able to select and distinguish from among the journals of the whole world that king of medical publications, the *British Medical Journal*.

A very coarse analysis of the contents of our publications shows characteristics which are peculiar to each in the spaces usually allotted to original contributions, lectures, correspondence, society proceedings, abstracts, translations, melange, news, editorial and book reviews. In every one of these several departments, I am ready to believe that every member of this Association is doing the very best he can for the journal he edits, and is only prevented from doing very much better because of his environments and financial limitations, and that in no instance will any one presume to say that his journal is the best that he can make it, providing he were differently circumstanced.

In scanning the departments of our journals, your attention is directed to that of bibliography, and I would suggest that book reviews should be limited to the briefest possible acknowledgment of the receipt of a volume. Medical book making is a manufacturing and commercial business, and as such should continuously patronize the advertising pages of our journals. Our British medical journalists understand this, and conduct their publications in a model manner in this regard. I have no hesitation in saying that the long

laudatory book reviews should cease to appear. They strangled the London *Medico-Chirurgical Review*, and badly choked the old *Quarterly American Journal of Medical Sciences*. Eliminate them as soon as possible and devote the space they now have to a better purpose. A fair proportion of the pages of every medical journal should be used for the advertisements of dealers in all kinds of physicians' supplies, educational institutions, hospitals, sanitariums and whatever is of such a nature as to particularly appeal to physicians for patronage.

Advertisers are next to subscribers the most valuable adjuncts a medical journal can have. They are the journal's most liberal financial supporters, and should have our most friendly consideration.

A medical journal may be ever so ethical and high toned, edited by a Holmes or a Mitchell, be printed on 100-pound supersized, calendered paper, with new old style type and gilt edged, but if issued without advertisements it will be defective, incomplete, crippled, and recognized as too good for this world. With a full appreciation of these relations, I am free to suggest that medical journals should strictly confine all advertisements to the regular advertising pages. So-called reading notices should be absolutely eliminated from the reading pages of every medical journal. Articles prepared for and in the interest of an advertiser are usually a fraud, and should be expunged from the reading pages. The members of this Association are quite familiar with the appeals made for the insertion of reading notices, and the republication of articles containing references to particular remedies.

Every time a journalist accedes to one of these requests he feels that he has done wrong, that he has deliberately lowered the value of his journal as a professional and scientific publication. He has abused the rights of his subscribers and damaged his own self respect. Our friends the advertisers certainly do not appreciate this fact, or they would not so persistently pursue the course they do in this matter.

An advertiser never intentionally misrepresents in any way the nature and character of his goods in his regular and legitimate advertisement placed in its proper location in the advertising pages. This you and your readers can rely upon all the time. But when it comes to the reading notice and laudatory article, the advertiser loses his head, and wants the grossest exaggerations and misrepresentations published, and all because he feels that the editor, and not himself, is responsible for the matter that appears in the reading page, while for his legitimate advertisement in its own location he holds and assumes responsibility.

We want to cultivate intimate relations with reputable advertisers, and should endeavor to show them the actual harm they are so ready to unintentionally inflict upon our publications, and explain that there is such a thing as ethics in medical journalism. One more argument should be presented to them, and that is the cordiality of feeling towards an advertiser is more than twenty-five per cent. greater when his dealings are conducted directly than when through a general agent. Never neglect an opportunity to impress this idea upon the advertiser, showing the advisability of close cooperation.

Finally, your attention is directed to a class of so-called medical journals which are recognized as trade publications, and are issued by commercial and manufacturing dealers in physicians' supplies.

Such journals materially damage our current medical literature by crowding into it a mass of ingeniously written matter, nearly every page of which is cut bias and made to do duty in the garb of pseudo scientific notes and articles, the chief purpose of which is the laudation of the peculiar preparations made and sold by the firm that publishes the so-called medical journal.

It is well known to every member of this Association that every article, be it ever so well written, that in any way qualifies, or is inimical to the preparations sold by such houses will be allowed no space in such publications.

Such so-called medical journals do not deceive Weir Mitchell, William Pepper, Nicholas Senn or William Osler, but they do deceive hundreds and thousands of medical practitioners, who are not familiar with the wiles of those who scheme to deceive the very elect.

This class of publications are practically trade circulars and price lists, issued in journal form in order to obtain a dishonest advantage over their more honorable competitors in the use of the United States mail. They sing the siren song of enchantment that beguiles the unwary practitioner into the use of so-called specific goods made and sold exclusively by a specific house.

These publications are the literary quacks and charlatans of our profession. As journalists we should ignore them absolutely.

Dr. Gould, editor of the *Philadelphia Medical News*, read a paper on "The Spelling of Some Medical Words."

Dr. Crothers, editor of the *Journal of Inebriety*, also read a paper on "The Interests of the Association."

The banquet which followed was a feature of the occasion not to be forgotten. Mr. Ernest Hart, editor of the *British Medical Journal*, was the special guest of the occasion and made the following remarks on

JOURNALISM AS A CAREER.

During the last thirty years a great change has come over the world of literature, science and politics. In that change, which journalists have largely helped to bring about, their function, their powers and their duties have been largely transformed and inevitably magnified. The mission of the medical journalist is a great one; it is no longer an accidental function of an otherwise busy man's life. Even the ablest men who have taken that view of journalism have failed to make much mark. I refer to men of such capacity and standing as Jenner, Quain, Spencer Wells, Barnes and Jonathan Hutchinson, all journalists in their day. It offers a career which may fulfill high ambitions, and subserve their large usefulness.

I speak of it as a mission, for no man can reach the ideal of medical journalism who only writes to live; he must live to write.

THE IDEAL QUALITIES OF THE JOURNALIST.

The ideal journalist needs to cultivate many qualities which it is not always easy to combine. He should have rapidity of initiative and promptness of decision, for slow deliberation is the grave of opportunity. He needs quick and catholic sympathy, for this is a great source of power, but a corresponding capacity for just indignation is its necessary correlative and qualification. Magnanimity is a necessary editorial quality, for often the best way to remedy injuries is to forget them, and an editor must know what to pass over as well as to what to note, and must be able and willing, often graciously and tenderly, to ignore what others know. He must be accessible to all, and while appreciating the personal acquaintance and justifying the confidence of the leaders among whom he lives and ranks, he needs to be in daily touch and constant sympathy with the professional masses whose requirements and rights it is his special function to voice and to champion.

GUIDING PRINCIPLE.

To be really useful and to be really powerful, two things which are almost synonymous, the editor of a medical paper must in his public capacity, even more than other men in their special spheres, always govern his course and be prepared to justify it by referring each individual case to a recognized basis and a logically defensible principle. He is a leader militant; he must be a standard bearer and must have always a motto inscribed upon his flag. I long since chose mine. It is one to which many thousands of our profession in Great Britain have rallied, and I do not see any prospect of needing to change it for many years to come; my guiding principle has been and is "the government of the profession by the profession for the profession." You will recognize in this formula the altered words of one of our greatest statesmen. Of the medical press even more than of the general press may be used the words of one of the ablest of modern editors; that it should be at once the eye, the ear and the voice of its readers, and especially of the lowly among them. It should be the visible speech, the phonograph of all ranks. It carries a chieftaincy which arises out of its being the servant of all. Among its great powers must be counted that not only has it the casting vote in many decisions, but it also has both initiative and powers of closure. It can declare urgency or shut down discussions. It is a parliament always open, and of which the editor is not only chief orator but he is also speaker and chairman of committee. With its privileges and responsibilities come many pains. Journalism needs many enemies and entails much sacrifice. An editor needs and

must have many enemies; he can not do without them. Woe be unto the journalist of whom all men say good things. "A man," says Oliver Wendell Holmes, "whose opinions are never attacked is beneath contempt, for every real thought on every real subject knocks the wind out of somebody."

Compece mentem, durum sed laevius fit patientia, quicquid corrigere est nefas; which, freely translated, may be summed up in a few words: Bide your time, keep a cool head and quiet mind. Time cures all things, and patience softens hardships. Editorial work, like all other good work, is largely one of self-sacrifice. It is the grave of literary reputations and the despair of literary ambitions. In writing reading articles, as Washington Irving found in voluminous correspondence, your mind is torn from you in strips and ribbons, which are scattered to the wind, and your thoughts leak out in dribbles which barely moisten the earth. Where is there a literary memorial of any, even the greatest among editors? Perhaps Addison might have survived by his Spectator alone, but he was an essayist rather than a journalist. St. Beuve has left a monument of literary criticism, but not it is to be feared, "more lasting than brass," but Delane Wise, great editor that he was, the brilliant Fonblanque, Hutton, philosopher and moralist, have but written by fear their names in sand, and that is the common lot of all journalists as such. In their works they shall live, but their names, hardly known even in their own day, shall speedily be forgotten.

That is at once their glory and the penalty in which they must rejoice, and their influence far-spreading and enduring, their unseen power in the shaping of events, is the reward of their self-effacement. An editor must quickly form his opinions and firmly express them, but he does well not to enter into controversy. For controversy, it has been well said by Dr. Oliver Wendell Holmes, equalizes fools and wise men in the same way, and the fools know it. It is a prudent thing to refuse to be drawn into controversy, especially in the pages of one's own journal. Don't lose time in alteration, for in much alteration truth is lost. Let every man have his say; let him contradict you; let him attack, provided he does so in the limits of courtesy and of good temper. Learn from him, and let others learn. Do not answer him or put tags to his letter unless some rectification of facts is necessary. Among the earliest lessons for an editor to learn, and it is one also which must last him during all his life, is to be slow to this evil, and to be hard of hearing for personal accusation. The accused so often turns out to be whiter than the accuser.

REVIEWS AND REVIEWERS.

If now we may, in passing, linger for a moment in the field of technical details to speak of some special editorial difficulties, I will select as not the least trying that of the fair and kindly conduct of the department of review. It is an obvious truism, often clothed in the millinery of epigram, that the author who sends a book for the candid opinion of the reviewer, as he says and believes, almost invariably expects it to be praised. Anything cooler than a warm shower of eulogy chills him; a lukewarm mixture of praise and blame makes him shiver; a rain of cold criticism is apt to make his teeth chatter—with rage; and for this there is a great excuse. Of a book, even more than a child, the author is apt to say to himself, "it is a poor thing, but mine own." The condemnation outrages not only a man's self-esteem, but his parental affection. It is well, then, to advise the younger reviewers, who are apt to be arrogant and satirical on small provocation, to temper justice with kindness; to seek out merits as well as defects; to endeavor to portray the character of a book when passing judgment, and to forego the savage joy of cutting up the product of the feebly well-intentioned. Rather pass their work over in silence. But there is a tribe of books, wares of the self-advertiser, the vulgar notoriety hunter, flags of the unscrupulous privateer who flies without a warrant the colors of the specialist—sign boards of the masquerading quack. Of these it must still be said, when the culprit escapes the judge is condemned. But it is of literary quackery in high places, of the empty platitudes, of the ill-written inanities, of orations, discourses and lectures by men who, having attained professional distinction, fail to set aside time for continuous intellectual culture. It is of these that it becomes the medical journalist to harden his heart as the unforgiving judge. He alone can venture fearlessly to do so, and he ought to do so, for they not only disappoint, but they mislead. They lower the literary standard of medicine, which is already inadequate.

LITERARY STYLE.

That brings us to the subject of literary style in medical journalism, which may be dismissed, however, in very few words. An editor is often asked by young writers "what style would you recommend me to adopt?" And what advice can you give me for writing, in your journal? I don't know what your view may be, but it has always seemed to me desirable to recommend the avoidance of style and to advise those who seek counsel on style consciously to avoid it, and to try chiefly to say what they have to say as clearly as possible and to seek mainly the accurate expression of precisely the shade of meaning which it is intended to depict. It is a golden rule to think out clearly and precisely what there is to say and to say it shortly and without ambiguity. People who are anxious about style are generally those who have nothing to say and they are precisely those who take longest in saying it. It is generally difficult to say nothing without saying it at great length, and medical stylists are the bores of the profession and the terror of the medical journalist. On the other hand nothing will compensate for the want of clear and grammatical expression, nor is there any department of journalism in which pompous rhetoric and the straining after jocosity is less graceful than medical journalism.

ORGANIZATION OF THE MEDICAL JOURNAL.

I have nothing to tell you which you probably do not know better and from more modern sources, and from your own experience on the subject; but I can in a few words lay bare to you a few secrets of our own press room and leave you to value or cast them away. Many of us here were educated in the old school of journalism which relied chiefly on the permanent staff of leading article writers and reviewers, to whom were allotted from week to week everything in their respective departments. When a young man, and while still residing in the hospital, I wrote the editorial notes of the week for a leading journal. Three columns a week was the allotted tale. To another member of the staff was intrusted three columns of answers to correspondents, and so on from cover to cover. In some high places I believe that system still survives; it seems to me effete; at any rate I have abolished it for the last twenty years. The only system which seems to me adequate to the real needs of professional readers is that in which every unsigned editorial paragraph is written by a specially selected expert. That is the principle on which I have modeled the journal I have the honor to conduct. Every letter received, every paragraph, every cutting, editorially dwelt upon is referred to an expert having a special knowledge and being a recognized authority in the matter. The recent examination of our books show that to fulfill the requirements of the comparatively few pages of our journal devoted to unsigned editorial matter we need and employ the services of an active staff of nearly 250 editorial writers. Of these, upwards of forty contribute on an average to our pages every week; often only a few lines each, for our object is authoritative accuracy, our literary aim is brevity and fullness and our difficulty is condensation. It is a laborious and difficult method involving heavy daily correspondence and constant vigilance to guard against personal eccentricity or prejudice of that bugbear of journalism—unjustifiable censure. But that method may, I venture to think, be recommended as one which gives authoritative accuracy, reality and trustworthiness to journalism. A medical journal in order to rise to the height of extended usefulness, needs to be written from end to end by experts, and so far as the journal of the British Medical Association may be considered to have been a success, that success has, I believe, largely been due to the fact that no pains or necessary outlay has been spared to provide that every line in every department shall be written by persons who are themselves trustworthy experts; that it shall be free from padding and in its smallest details true; worthy of confidence in statement of fact, and free from the rehash of second rate opinions gathered from second rate sources. I may venture also to suggest that it is a great advantage to a journal and to the profession which it represents that it should be connected with living organizations local or general. Energy becomes in itself a merit where otherwise it would be a fault where there is an organization which underlies and which is capable of overruling it; where the journal is not only a voice, vox et preterea nihil—but also an undisguised personality and associated with influential standing committees. A journal becomes thus an active, permanent and ever living tower in the state; the combination of a journal with an association, the highest devel-

opment of this form of profession and social influence may be, I believe, fairly demanded and expected. And our experience has shown that it is not always expected in vain.

MEDICAL ETIQUETTE.

A class of questions which give an editor frequent occupation for thought and some time some passing troubles are those known as questions of medical etiquette. The value, the uses and meaning of medical etiquette are variously estimated. There are those to whom it is fetish, and those to whom it is tabu. To some it is a name of terror, to others a term of derision; some assume to hold themselves above its reach, others are obviously below it and some outside it. The philosophers hold it to be unnecessary because superfluous, but it is perhaps true, however paradoxical, to say that in our complex modernity of civilization it is chiefly the superfluous that is felt to be essential. At any rate it is chiefly our superfluities which become indispensable. The philosophers are apt to protest that medical ethics have no separate existence apart from or antagonistic to the rules of general ethics. Far from being a reproach or a ground of destruction or a reason for abolition that is one of its highest claims to respect and a fair measure of its usefulness. Medical ethics are particular cases of general ethics. They constitute the bulwarks and the outer fortifications of the central fortress. "Do unto others as you would have them do unto you" is the golden rule which is enclosed within the general medical ethics. But society has found it necessary to formulate a vast number of accepted laws of conduct which are none the less necessary for daily use because they may all be found inscribed in the ten commandments; the gospel rules of conduct for life and the whole code of modern legislature for the regulation of social relations are not superfluous because they may be traced to the simple Mosaic tablets and to the sermon on the Mount. In the complex relations of medical life questions daily arise involving principles upon which every man might after due thought decide for himself. The application of principle which every man might work out if his intellect were always keen, his judgment well balanced, his interests calmly self judged and easily put aside when they conflict with the general interest, so perfect a being might be content to be a law to himself, but for perfection it has been found in every walk in life that it is well to have in hand, stored in the memory or laid down for reference, decisions and rules already settled by the wisdom, the experience and the judgment of the wisest and best of our predecessors and our contemporaries. That is the code of medical ethics and we wise men will not despise it. Let me say in one brief sentence that many of us in Great Britain think it one of the highest and greatest claims to sympathy and respect of the American Medical Association as a representative body that it has framed and promulgated such a code, and that it has made great sacrifices to uphold it. *Securus judicat orbis curatum*. The voice of the profession has been and is in the end the surest judge of right and on all such questions of general conduct and universal rights it is the rank and file of the profession with whom lies the duty, the power and the privilege of decision; even in the face of opposition from those whom we delight to honor as the leaders of the profession. That brings me to my final topic:

LEADERS OF THE PROFESSION.

No man attains that position now-a-days without having earned it. No one should reflectively and consciously speak slightly of the leaders, least of all could I. I have enjoyed the friendship and frequent opportunities of communication with men such as Austen Flint, Van Buren, Gross, Fordyce Barker, Marion Sims, Agnew, to speak only of a few of those of your leaders whose personality was best known to us, but who have, alas, gone over to the majority. No one could have known them without recognizing the signs of nobility of mind and strength of character. So with us, it has been a liberal education to have spent a life in frequent communication at successive periods, and on many great and small occasions with men such as the sagacious Brodie, Sir Henry Holland, a philosopher, traveler, and a pioneer by intellect; Owen, the Cuvier of Great Britain; Lawrence the cultured ethnologist and scholar; Watson, the Nestor of the last generation of medicine, and still a classic; Ferguson, lion hearted and woman handed; Syme, sturdily original and uncompromising; Simpson, a path-maker in obstetric medicine and surgery; Christison, the type of prudence and candid research; Stokes, brimful of sagacity

and humor; Corrigan and Porter, the masters of the great Dublin school; and our own loving leaders, Jenner, Lister, Paget, Andrew Clark, Quain, Spencer Wells, Henry Thompson, Hutchinson, all men who have risen by their own individual merits, and are known by their works. They have fruit as well as leaves. It is not therefore in a cynical mood or snarling temper that I say, except in clinical scientific research, a great and never to be forgotten exception, Put not your trust in leaders. *Lucus a non lucendo*.

They are called leaders, but so far as modern history shows, and so far as my experience of thirty-five years teaches, they are mostly led. In the great social movement of medicine, in its human progress, in the development of the new and wider function of medicine, its relation to public life, its organization for the prevention of diseases, for the care of the sick poor by the State, for the organization of out relief of hospitals in such manner as to prevent abuse; in most of the great movements of our day we have for the most part found them lagging, cold or indifferent. Feeling little enthusiasm for such movements in Great Britain as those which resulted in the appointment of the sanitary commissions, in that organization of a public health system which laid the foundation of the new science and practice of diseases. It was Rumsey, Farr, and W. H. Michael who led the way and whom I found the most active promoters of a system which then furnished the model for the civilized world. They were general practitioners without hospital appointment. The general medical council of education and registration was created at the British Medical Association led by Hastings, its founder, Bottomly of Croydon, Waters of Chester, pronounced practitioners. That council which has rendered such vast service for the cause of education was created and has been remodeled in the teeth of active opposition and subsequent indifference of the leaders of medicine ordinarily so-called, who have, however, kept in the leading place on it in virtue of their official positions. So was it with the reformed of the Workham Hospital and infirmaries which are with the hospitals of the State, that was in its inception the work of a medical journal, *The Lancet*, with which I was then editorially associated. It was carried out by Rogers, Carr and Anstie and myself with the aid of a vast body of lay support which we conciliated. So it has been with the removal of the grievances of the army and navy medical officers until lately the whole of that reform has been left in the hands of the parliamentary committee of the British Medical Association. The battle has been successfully fought by that representative body of general practitioners and by them alone, until last year we, the royal college, united to secure the adoption of the recommendations of a war office committee which, however, they had up to that date done little or nothing to obtain. I repeat then, rest not your hopes of any purely scientific progress on leaders, for the maintenance of growth in your organizations and of your relations to the State and the people. When you have made up your minds by preliminary discussion and in general session as to what is needful, right and wise, and when your cause is well advanced and winning all along the line the leaders of the profession generally follow. Do not mistake me; it is in the order of things. The leaders are always apt to resemble the conservative old world squire described by Washington Irving, who went religiously to church and sat in the front pew and joined boldly in the responses, because it seemed to be to him an excellent example to the lower order, to show that though he was great and wealthy he was not above being religious. The leading men are apt to join reluctantly in any new movement. The rails must be made first, and the roadway made secure, and then they are commonly willing to board the train and come along in the first car with the flags flying and the music sounding, to receive the sympathy and the applause of the admiring crowd. They are not surprising. *Difficilis gloriæ custodia*; they have for the most part a great practice to attend to which keeps them busy, and a great reputation to maintain, and to make a mistake might be a terrible thing. They are always thinking ex-necessitate of where they stand. Their tendency is to stand in the old ways, with which they have good reason to be satisfied. It is for us to take larger thoughts of where we are going. We journalists need not be so much afraid of making a mistake from time to time. As your ambassador said not long since at the London Mansion House, to the great delight of his hearers: "The man who never made a mistake never made anything."

We can all try to make as few as possible, but it has been truly said that genius consists not in never making a mis-

take, but in never making the same mistake twice over. We journalists need not be so much afraid of unpopularity. It is very often the case, and I suppose all of us have found out in the course of our career it is not unfrequently the forerunner of success.

You can not if you would avoid hatred, but you can take care that no man justly hates you. In the fulfillment of our public duties it is necessary to base opinions and policies upon a logical principle, and hold personal interests and private prepossessions as of little account. We have all a natural love for friends and friendship, but private friendships which will not bear the strain of public differences must give way. Time will often happily repair ruptures which have given much pain, and these are among the greatest pains and griefs of responsible journalism.

They are slaves who fear to speak,
For the fallen and the weak.
They are slaves who will not choose
Hatred, scoffing and abuse.

Rather than in silence shrink
From the truth they needs must think;
They are slaves who dare not be
In the right with two or three.

The Association was also honored with the presence of GOVERNOR PECK, who, in response to a call, paid a most beautiful tribute to the character and esteem of the family physician. Other gentlemen eloquently occupied every moment of what seemed all too short a time, until the nearing of the midnight hour, the dispersion and satisfaction which followed the feast of reason and flow of soul.

The sessions of the American Medical Association were opened by addresses of welcome on the part of DR. WINGATE, chairman of the committee of arrangements, GOVERNOR PECK and MAYOR SOMERS, after which DR. HUNTER MCGUIRE, of Richmond, Va., delivered the annual address, published in our last issue.

LEGAL EFFECT OF ACCEPTING AN AMOUNT LESS THAN BILL RENDERED.

It is a general principle of the law that where a demand is liquidated or fixed, and the liability of the debtor is not in good faith disputed, the acceptance of a less sum than is the creditor's due will not, of itself, discharge the debt, even if a receipt in full is given. In such case the element of a consideration is lacking, and the obligation of the debtor to pay the entire debt is not satisfied. Unfortunately, however, this rule is denied application to bills rendered for medical services, according to a decision of the Court of Appeals of New York, in *Fuller v. Kemp*. Here a physician made out a bill for \$670 for medical services, in settlement of which a check for \$400 was sent to him, and stated to be in full satisfaction. This was retained, credited on the account, and a bill for the balance rendered. The person charged thereupon again wrote the physician, calling his attention to the express condition upon which he had forwarded the check, and that it was sent as payment in full satisfaction of the latter's claim for professional services to date; that he did not recognize his right to retain the amount so offered, and repudiate the condition of the offer; and requested him either to keep the money upon

the condition named, or return it to him by first mail. To this letter the physician made no reply, but kept the amount of the check, and after the expiration of nearly a year brought action for the recovery of \$270, the balance of his account after applying the \$400 received. Under such circumstances the court said that no further recovery could be had. The law favors the adjustment of such controversies without judicial intervention, and will not permit the creditor to accept and retain money which has been tendered by way of compromise, and then successfully litigate with his debtor for the recovery of a greater sum. But to constitute what is called an accord and satisfaction of unliquidated claims, it is necessary that the money should be offered in satisfaction of the claim, and the offer accompanied with such acts and declarations as amount to a condition that, if the money is accepted, it is accepted in satisfaction and such that the party to whom it is offered is bound to understand therefrom that, if he takes it, he takes it subject to such condition. When a tender or offer is thus made, the party to whom it is made has no alternative but to refuse it, or accept it upon such condition. If he takes it his claim is canceled, and no protest, declaration or denial of his, so long as the condition is insisted on, can vary the result. To make out the defense, the proof must be clear and unequivocal that the observance of the condition was insisted upon, and must not admit of the inference that the debtor intended that his creditor might keep the money tendered in case he did not assent to the condition upon which it was offered.

FAMILY EXEMPTION FROM CHOLERA SECURED BY SANITARY MEASURES.

The efficiency of a thorough hygiene of the domicile *versus* cholera is greater than many persons are willing to admit. A timely illustration of this important factor in the prevention of cholera coming from Asiatic Turkey, may be quoted from the *British Medical Journal*. A correspondent of that paper writes: "The infection is powerless among people who are careful to cook thoroughly all food and to boil all the drinking water. That the water is highly dangerous seems to be proved by a striking incident in a native family near us. In that household the sanitary rules were strictly observed, but one of the women, in bravado, drank three cups of unboiled water, saying to the others, 'Let us see what it will do.' She was taken ill and died in just twenty-four hours." And at the time the writer was last informed regarding the status of that family, that fatal case was the only one in that household. The boiling of the drinking water *plus* the keeping of it in vessels frequently cleansed with boiling water offers the best security that is at present available in the presence of an epidemic. Filtration has

been reported favorably from certain of the German cities, and is doubtless serviceable when the system is new and unimpaired; but it is less certainly under the command of a sanitarily regulated family than is the practice of boiling the drinking water. It is advisable to replenish the stock of boiled water every day, when cholera is present and near at hand in any given community.

NEW FORMS OF MEDICATION BY MEANS OF THYROID GLAND PREPARATIONS.

Messrs. BURROUGHS, WELLCOME & Co. of London, have recently introduced a compressed pill containing pulverized sheep's thyroid gland for use in myxœdema and other allied diseases. A very low temperature is maintained during the process of drying and extractives are not used. Only fresh and healthy appearing glandular structure is employed; all cystically degenerated parts being carefully rejected. The tabloids are lightly compressed. Each of them is supposed to represent five grains of eligible and efficient gland tissue. As the particular element in the thyroid—that as a whole has been found to work so powerfully and promptly in myxœdema and sporadic cretinism, has not been isolated—the gland in its entirety, with or without its contained water, is for the present at least considered the proper therapeutic agent. The tabloids above referred to are claimed to contain all the active properties of the thyroid gland. It is claimed that they do not readily deteriorate. They are far more agreeable to the eye and palate than some of the forms that have been used, such as the minced raw or parboiled gland. Four tabloids thrice daily will represent about one-third part of an average sheep's thyroid, and may be considered a full dose. Young persons and those in advanced life, whose arteries are not intact from atheroma, should have a lower initial dosage. The thyroid of the bovine species as well as of the ovine—all of them formerly so much in disservice as to be a drug in the market—are now distinctly useful in medicine, and may be honored with a place in the drug market hereafter.

The firm above named, in a recent advertisement, refer to the bibliography of the subject, beginning with an article by DR. VESSALE, written early in 1891, and closing with a review of the subject by DR. WATSON WILLIAMS in the *Edinburgh Medical Journal* for May; eleven writings in all, and nearly all of them taking a favorable view of the prognosis of myxœdema and sporadic cretinism under the new treatment. It may be said in passing, that the attempts to apply this treatment to goitrous diseases have been disappointing in the hands of several independent clinicians.

Regarding the degree of success that has attended the treatment of myxœdema by the thyroid in its

various modes of dosage, it may be roughly estimated that it has failed in 4 per cent. of the cases. Whether disastrous results have or have not followed the treatment in very feeble patients, is not yet positively demonstrated; but there is a certain amount of evidence going to show that cardiac depression may occur, and may even end fatally.

HAFFKINE'S EXPERIMENTS IN INDIA.

A report concerning the visit of M. HAFFKINE to Asia appears in the *Press and Circular*, May 24. Four hundred inoculations have been done by him at Agra with his protective virus of cholera, with no untoward manifestations. Permission has been granted enabling voluntary inoculations to be performed on the troops of the garrison; each inoculated soldier to have two days' light duty after the inoculations. M. HAFFKINE has been invited to visit the cholera localities in various parts of India, and he will probably be well received wherever he may go under the semi-official encouragement he has received. The medical officers of the Agra garrison have given him much assistance, otherwise he would have been greatly overworked or could have accomplished comparatively little.

DULCIN, A NEW SYNTHETIC SUGAR FOR DIABETICS.

The last number of *Notes on New Remedies* states that a new synthetic sugar, called "dulcin," or parphenetol carbamide, is engaging the attention of DR. BOIS-RAYMOND and other physiologists of Berlin. KOSSEL has been carrying on experiments on rabbits showing that the drug may be taken in doses of thirty grains daily without any disturbance of the general well-being. Dogs also have been fed with this substance for three weeks continuously, without any appreciable detriment to appetite or weight. The sweetening potency of this drug is as 200 to 1 of cane-sugar.

DR. EWALD has tried this substance clinically and upon persons in health. He reports that it is readily taken, the taste being acceptable to all. It proved to be especially suitable to diabetic persons, given to them in "the mannite combination, one to nine." Tablets containing two-fifths of a grain of dulcin—equivalent to eighty grains of lump sugar—and one or two of these can be used by patients as the sweetening agent for coffee and other beverages. EWALD regards dulcin as free from toxic property in the quantity that is liable to be taken.

Those who desire a bound volume of the proceedings of the Section on Obstetrics and Diseases of Women of the American Medical Association, whose sessions were recently held in Milwaukee, should send in their names and addresses to the office of THE JOURNAL at once. We have already received orders for forty-three copies, and must have at least 100 subscriptions. Price \$1.00.

PHYSICIANS MAY TESTIFY AS TO MATTERS GAINED FROM THE STUDY OF BOOKS.—The testimony of physicians relating to what they have acquired from the study of standard medical works, rather than from experience in actual practice, is admissible in evidence, holds the Court of Civil Appeals of Texas in *Fordyce v. Moore* (22 S. W. Rep. 235), and is not to be rejected as testimony regarding the contents of medical books.

COMPETENCY AS EVIDENCE OF STATEMENTS MADE TO PHYSICIANS.—It is the rule of law, supported by the weight of authority, says the Supreme Court of Minnesota in *Brusch v. St. Paul City Railway Co.* (55 N. W. Rep. 57), that it is competent for physicians to give to the jury their opinions, based on a personal examination of the patient and on statements made by him at the time, touching his present bodily condition; and statements made to an attending physician by an injured party in respect to his injuries and pain suffered by him, are competent evidence in connection with the physician's examination and observation of the patient.

THE AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION (late the Association of Medical Superintendents of American Institutions for the Insane), held its regular annual meeting in this city on the 6th, 7th and 8th of the present month. The session was noteworthy in that it was the first one held after the reorganization effected last year. Under the former organization membership was dependent upon official position and any political appointee to the position of superintendent of an asylum or hospital for the insane could demand admission. At the meeting just held only one recent appointee in the asylums of this State was admitted to membership, Dr. Meyer, the pathologist at Kankakee, who was elected an associate member.

The meeting was a success, and the association will finish its half century of its existence next year with better prospects for the future than ever before.

PROFESSOR O. LIEBREICH ON MINERAL WATERS.—The following is an abstract of a paper on "Artificial and Natural Mineral Waters," read by Professor O. Liebreich at the Balneological Congress recently held in Berlin. He began by asking: Is Chemistry sufficiently advanced yet to produce artificial mineral water equal in all respects to the natural water? The answer can not be in the affirmative. Some substances, such as alizarine, indigo, urea, etc., can be produced synthetically, the artificial product being in every respect identical with the natural one. But in the case of mixtures such as mineral waters are, synthesis is a much more difficult matter. The analysis of each of the first-mentioned substances gives exactly 100 per cent., whilst in the case of artificial mineral waters the analyses—even of the most renowned analysts—fall short of 100 per cent., thus leaving a remainder the nature of which is absolutely unknown.

Many mineral waters on evaporation leave an organic residuum which goes by the name of glairine. It can not be affirmed with certainty that this residuum is therapeutically efficacious, but just as little can it be denied, and certainly the residuum is not contained in the analyses of the artificial mineral waters. Further, in mineral waters, carbonic acid gas occurs both free and in chemical combination. In 1882 it was discovered that carbonic acid gas forms a hydrate, that is to say, that there exist several kinds of carbonic acid gas. The presence of a carbonic acid gas hydrate had long been concluded from the existence of another combination that is a derivative of it, namely, car-

bonic acid ethyl, a carbonic acid hydrate, the two hydrogen atoms of which are replaced by two C₂H₅ groups, that is, carbonic acid ethyl ether. Carbonic acid ethyl is known for its agreeable taste. It is probably contained in champagne and in other alcoholic effervescent drinks. Ballo was the first to show the presence of carbonic acid hydrate experimentally. If a magnesium wire be introduced into carbonic acid gas, no reaction takes place. If a magnesium wire be introduced into water which has previously been saturated with carbonic acid gas, after some time gas is developed. This gas is not carbonic acid but pure hydrogen. We must conclude that in the water the carbonic acid gas has been transformed into carbonic acid hydrate, and this develops hydrogen, as every acid does when brought in contact with metal. It may be supposed that the action of anhydric carbonic acid gas is different from that of carbonic acid hydrate. The formation of hydrate takes place quickly in pure water, but very slowly in concentrated salt solutions.

Now there are substances which are difficult to demonstrate as such by analysis because they decompose very easily, so that only the products of their decomposition can be shown. Such a substance is carbon-oxide-sulphide (COS), which when alone shows neither the reactions of carbonic acid gas nor of sulphuretted hydrogen, but which, when for some time in contact with water, is decomposed into carbonic acid gas and sulphuretted hydrogen, according to the formula: $\text{COS} + \text{H}_2\text{O} = \text{CO}_2 + \text{H}_2\text{S}$. In mineral waters at the springs carbon-oxide-sulphide occurs; the analysis shows it as carbonic acid gas and sulphuretted hydrogen.

There is a further reason for thinking that minimal quantities of substances in mineral waters may be of importance. The salt mixture forms a whole from which no part can be taken away without disturbing the equilibrium. This shows the fallacy of the old-fashioned notion that springs, the chief ingredients of which are the same, have the same therapeutic effect even though differing in some minor ingredients. There is no analysis so exact or sensitive as our senses—taste and smell. A perfume of musk in the air is perceived by the smell even though it can not be demonstrated by chemical analysis. Even the best manufactured artificial mineral waters differ from the natural ones in taste and value. This difference is not easy to explain. It is sometimes found, however, that the two mineral waters, otherwise identical, differ as regards electrical conductivity.

As to the so-called "indifferent" springs, it is a mistake to speak of them as of minor value. It must be remembered that they too contain mineral ingredients, if only in minimal quantities, which counteract the harmful properties of perfectly pure distilled water. Even hydropathy is a mineral water treatment, for if the water used were without traces of mineral substances it would be poisonous. This has been sufficiently proved elsewhere.—*Brit. Med. Jour.*

NECROLOGY.

Charles Pratt Strong, M.D.

The death of Dr. Charles Pratt Strong of Boston, in consequence of acute septicæmia following a laparotomy, is commented on by the *Medical and Surgical Journal*, of that city, both as a testimony to the devotion to duty of surgeons, and also as a warning to the latter that this devotion may be carried too far. Surgeons owe it to themselves and to the world that they bestow a greater degree of attention to the preservation of their own lives when brought into the presence of a possible surgical infection, than many of them are

in the habit of bestowing. It is no longer necessary to inculcate the septic dangers that attend the patient when under the knife; but it would not be amiss if our surgeons could agree upon a set of rules that must be observed by the operator for his own benefit. And this is proper and expedient, not solely for the reason that it may mean the saving of a pre-eminently valuable life, but because there are considerations affecting the welfare of the patient that make it desirable that the surgeon's knowledge shall be available in the after-conduct of the case. So that, whichever way the question may be viewed, there seems to be a greater call than has hitherto been urged, that the surgeon shall aim to close the avenues of sepsis that lead towards himself; being of course none the less watchful for his patient all the while. The fact that the terminology of the profession has not recognized the existence of an infective surgical auto-trauma may induce some one of our lexicographers to propose a descriptive phrase, not too much involved, analogous to the term applied to that kindred but better known form of traumatism, namely "the dissection-wound." The expediency of such an added word or phrase is made manifest by the fatal accident of Dr. Strong. Accidents of this character will, we believe, receive better attention if they shall be differentiated into a class by themselves and receive a name.

Of Dr. Strong's merits as a physician and surgeon the *Boston Journal* writes most sympathetically. From every point of view the writer assumes, the early demise of Dr. Strong appears a sad and memorable professional event. He had risen to the front rank of his profession after about ten years of practice in the exacting city of Boston, having gone there without influential friends or extraneous helps of any kind. He had in that short time advanced steadily to a position where he was in demand as a consultant, especially in cases of abdominal surgery, besides having built up a most desirable family practice of his own. His native endowment was good, above the average, and he possessed a winning address. The confidence of the patient was generally freely and quickly yielded, and he was untiring in his efforts to prove that the trust reposed in him was rightly placed. As a surgeon he was bold yet cautious, seeking always the least hazardous route to results; he was skillful yet gentle, seldom hesitant and fully in command of his resources and skilled knowledge. He was a clear and forcible writer, and he has left behind him a long list of communications on gynecological and surgical subjects. The date of Dr. Strong's decease was March 14, at the early age of fifty-five years, after an illness of five days' duration. As stated above, this illness followed his performance of a laparotomy, showing itself as acute septic infection with an extensive phlegmonous inflammation of the thigh, and kidney disease. It will be a long day before this mournful exitus will be forgotten by his colleagues of the city of Boston. We think there is a lesson in it for the entire fellowcraft of surgeons.

MISCELLANY.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.—The nineteenth annual meeting of the Mississippi Valley Medical Association will occur in Indianapolis, Wednesday, Thursday and Friday, October 4, 5 and 6, 1893.

A general session will be held each morning and the afternoons will be devoted to section work. There will be three sections at this meeting, viz: One on general medicine, one on general surgery and one on obstetrics and gynecology; the last mentioned having been added since the last meeting.

The indications at present are, that for genuine scientific work, this will be one of the best meetings in the history of the association. The attendance will probably be unusually

large, as many physicians expect to make their visit to the World's Fair at this time. Chicago is but a few hours' ride from Indianapolis, and there is no more delightful time of the year in which to visit the World's Fair than this. Holders of tickets to Chicago on any line passing through Indianapolis will be entitled to stop-over privileges at the latter point. Cheap rates will also prevail between these two cities.

The profession of Indianapolis is united in extending a cordial invitation to physicians and their families to attend the meeting.

Reduced railroad rates will be provided, further notice of which will be given.

The secretary will be glad to receive titles from those physicians desiring to favor the Association with papers. It is especially requested that these titles be sent as early as possible, in order to give ample opportunity for the appointment of leaders in discussion.

The secretary will take pleasure in giving any information in connection with the meeting.

FREDERICK C. WOODBURN, *Secretary*.

No. 399 College Avenue.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers serving in the Medical Department, U. S. Army, from June 4, 1893, to June 9, 1893.

Major John Brooke, Surgeon, order relieving from duty at Ft. Leavenworth, Kan., and assigning him to temporary duty as attending surgeon and examiner of recruits at Philadelphia, Pa., is revoked. By direction of the Secretary of War.

Capt. Louis S. Tesson, Asst. Surgeon, is granted leave of absence for twenty-one days, to take effect on or about June 15, 1893.

Major James P. Kimball, Surgeon U. S. A., leave of absence granted on surgeon's certificate of disability, is extended two months on surgeon's certificate of disability.

Capt. Jefferson D. Poindexter, Asst. Surgeon, is relieved from duty at Ft. Nebraska, and will report in person to the commanding officer, Ft. Bowie, Ariz., for duty at that post.

APPOINTMENT.

Lieut.-Col. George M. Sternberg, Deputy Surgeon General, to be Surgeon General with the rank of Brigadier General. May 30, 1893.

PROMOTION.

Major John H. Janeway, Surgeon, to be Deputy Surgeon General with the rank of Lieutenant Colonel. May 31, 1893.

RETIREMENT.

Brigadier General Charles Sutherland, Surgeon General, May 29, 1893.

OFFICIAL LIST OF CHANGES in the Medical Corps of the U. S. Navy, for the Week ending June 10, 1893.

P. A. Surgeon S. S. White, ordered to the U. S. S. "Constellation."

Asst. Surgeon Henry La Motte, from the U. S. S. "Constellation," and to the U. S. S. "Newark."

Surgeon A. M. Moore, from Navy Yard, Mare Island, and placed on waiting orders.

Surgeon D. O. Lewis, from the Naval Hospital, and to the Navy Yard, Mare Island, Cal.

Asst. Surgeon J. E. Riggs, ordered to the Naval Hospital, Mare Island, Cal.

Medical Director A. L. Gihon, from special duty, New York, and to Washington Hospital.

Medical Director H. M. Wells, from Naval Hospital, Washington, and wait orders.

Surgeon W. A. McClurg, from Bureau Medicine and Surgery, and to the U. S. S. "Concord."

Surgeon L. G. Henneberger, ordered to special duty attending officers and their families in New York.

Surgeon R. C. Persons, from U. S. S. "Concord," and granted two months' leave.

Asst. Surgeon J. S. Hope, from the U. S. S. "Fern," and to the U. S. S. "Charleston."

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ASSOCIATION NEWS.

AMERICAN MEDICAL ASSOCIATION.

Forty-fourth Annual Meeting, held in Milwaukee, Wisconsin, June 6, 7, 8 and 9, 1893.

TUESDAY, JUNE 6—FIRST SESSION.—OFFICIAL REPORT OF THE GENERAL SESSIONS.

Vice-Presidents, Drs. H. O. Walker, Michigan; H. Brown, Kentucky, and Jesse Hawes, Colorado; the treasurer, Richard J. Duglison, Philadelphia; the permanent secretary, W. B. Atkinson, Philadelphia; the assistant secretary, L. H. Montgomery, Chicago; librarian, G. W. Webster, Chicago, were present.

The Association met in the Academy of Music, and was called to order at 11 A.M. by the chairman of the committee of arrangements, Dr. U. O. B. Wingate of Milwaukee, who said:

Members of the American Medical Association, Ladies and Gentlemen:—The time has now arrived for calling to order the forty-fourth annual meeting of the American Medical Association. Will you listen to the invocation of divine blessing by the Rev. Henry T. Secrist of this city?

The Rev. Henry T. Secrist then offered prayer.

At the close of prayer, Dr. Wingate said:

Gentlemen:—As chairman of the committee of arrangements, and on behalf of the physicians of the State of Wisconsin, of the city of Milwaukee and its citizens, I bid you a most cordial and hearty welcome. As this is the first time that this distinguished body has honored the State of Wisconsin, it seems but proper that we should hear a word from the Executive of the State, and it now gives me great pleasure to introduce to you his Excellency, Geo. W. Peck, Governor of Wisconsin. (Applause.)

Governor Peck was received with applause on rising.

GOVERNOR PECK'S ADDRESS.

Mr. Chairman and Fellow Citizens:—I am delegated by a million and a half of good people in the State of Wisconsin to bid you welcome within the borders of this beloved State. Milwaukee has been selected to be honored by you. If you as individuals go to a residence on a visit and are met in the parlor by the eldest daughter of the house, the most beautiful girl in all the neighborhood, and she takes hold of both your hands and shakes them cordially and looks into your eyes and says, "Welcome, welcome, welcome," and does not seem inclined to let go of your hands, you feel as though you were indeed welcome in that house. The city of Milwaukee is the eldest daughter in the State of Wisconsin. She shakes you by the hand and she does not want to let go. (Applause.) She is the most beautiful of all the cities in the union

or in the world. Her eyes look into yours with pleasure, with gratitude, that you have come to visit her. She may look upon you as her lover, and she may be jealous of the other daughters of our State, and not give you an opportunity to be welcomed by them; but the younger daughters throughout the State will make you just as welcome if you can make it convenient to visit them. (Applause.)

Wisconsin is a State that you have heard some from the past and will hear from in the future. It is a State that contains everything that is necessary to make its people happy, and there is room for half of the people of the country to settle here. (Laughter.) It seems strange that doctors should pick out the healthiest city in the Union, or in the world to meet, where there are no epidemics, no disease; but I suppose it is because you want to enjoy yourselves. You have come to a city where there is no need on earth for any man, woman or child to be sick. There is no need of cemeteries here, except to bury people who come here from other States of the Union with diseases that Wisconsin has not had time to cure. (Laughter.) We have cities in this State where you may visit with profit and pleasure. We have everything necessary for our people to live on. If there were a large wall built all around the State with from four to ten million people inside there would be found plenty to live—and to die, if they had to. (Laughter.) Everything is raised here except gold, and gold like quicksilver, would find some way of coming in and would be welcome, of course.

I sincerely hope that you will enjoy yourselves while in the State of Wisconsin and this city. Milwaukee will do everything to make you comfortable, and if at any time you become tired of the hospitalities of this city there are other cities in the State that you can visit, where you will be welcomed as cordially and heartily as here. I want you to feel that Wisconsin is one of the best States in the world. I want you to feel that your own States, in which you reside, are good enough to live in temporarily, but when you want to live to be 100 or 150 years old, then come here and be as happy and comfortable as the people in the State of Wisconsin are. (Loud applause.)

Dr. Wingate.—I have now the honor and pleasure of introducing to you our ex-mayor, Hon. P. J. Somers.

Mr. Somers arose amid great applause. He spoke as follows:

ADDRESS BY MR. SOMERS.

Mr. Chairman and Gentlemen of the American Medical Association of the United States:—It gives me pleasure as a citizen of Milwaukee to acknowledge the honor conferred upon the city by the assemblage within its precincts of so distinguished a body. On behalf of the people of Milwaukee I extend to you their most cordial greetings, and be assured that

you are requested to partake of the hospitalities of our citizens and to participate with them in the amusements and recreations of their homes and firesides.

Gentlemen, it is our peculiar privilege to live under one of the most masterly systems of government the world has ever known, and our nation, though young, is one of the most distinguished upon the face of the earth. Indeed, the assemblage here to-day of this great body is of itself the strongest demonstration of the greatness, glory and intelligence of our common country. (Applause.)

It is needless for me to say to you that your profession is one of the most useful, but at the same time one of the most ancient and honorable. Since mortality always attaches to and is inseparable from the human, your calling came into existence with the creation of man by God himself. The advancement made in your profession from time to time and especially within the last 100 years has made it almost perfect as a science. Through the efforts wholly of the physician human life may be prolonged and human suffering greatly alleviated. It may be said of your profession in connection with that of the sacred ministry that the comfort, welfare and happiness of our homes are largely in the keeping of both. Your hazards, anxieties and responsibilities are too great and well known to require any enumeration.

At times whole communities, yes, in fact, whole countries become exposed to and afflicted with epidemics of the most destructive character which decimate the race by thousands. On these extraordinary occasions we, the people, must look to you for the destruction of these epidemics and for the preservation of human life. But quite recently a large portion of Europe was so afflicted, and the danger became imminent to ourselves. Even in the near future we may be compelled to rely upon your vigilance and skill to keep from us this terrible scourge. Judging from your skill, exertions and devotion to sacred duty in the past, we have a right to rely upon you in any emergency, however great, with confidence and hope. To render your works effective in this respect you must have encouragement and assistance from all classes, and any municipality or State that will not furnish all the aid and encouragement required is guilty of worse than treason to its citizens. (Loud applause.)

Although not a member of your profession, gentlemen, I can well understand the object and utility of these conventions. You are selected to attend these meetings on account of your learning and eminence in your profession. You come from a diversity of locality and climate and in this the knowledge and experience of each are serviceable to all. Moreover, these meetings do much to keep alive that professional etiquette and loyalty which are essential to the success of any profession.

But I will not detain you, gentlemen, neither will I enter into any eulogy or description of Milwaukee, but I will simply indulge in the hope on behalf of its citizens, that during the intervals of your labor you may have an opportunity to see it and judge for yourselves. While you are here you will be under the guidance, so to speak, of our local physicians and I am sure they will leave nothing undone to make your visit both pleasant and profitable.

May your convention be productive of the best results. I thank you for your respectful attention,

and trust that your experience amongst us may be such that you will have only pleasing recollections of Milwaukee and its people. Gentlemen, you are a thousand times welcome to the "Cream City of the Lakes." (Applause.)

At the conclusion of Mr. Somers' address, Dr. Wingate arose, turned to Dr. Hunter McGuire, of Richmond, Va., and said:

Mr. President of the American Medical Association:—As chairman and on behalf of the committee of arrangements, I am delegated to present to you this gavel. Its body is brick, representative of the solidity of the institutions and industries of the city. Its color, cream. Around its borders you will find inserted some of the pearls of Wisconsin. It gives me great pleasure to present to you this emblem of your authority, with full confidence that you will use it to advantage in the deliberations of this great national body, and after your services here are ended you may carry it home with you and store it away in your archives, not for its intrinsic value, but for the high esteem and regard that the medical profession of the city of Milwaukee entertains for you.

Ladies and Gentlemen, I have the pleasure to present to you the President of this Association, Dr. Hunter McGuire, of Richmond, Va. (Applause.)

Dr. McGuire said: I beg to return to the committee of arrangements and to the physicians of Milwaukee my sincere thanks for the high compliment they have paid me in presenting me with this beautiful gavel, and to assure them of my grateful appreciation. (Applause.)

Dr. H. O. Walker of Detroit, first vice-president took the chair and Dr. McGuire then delivered the president's address, which was punctuated throughout with outbursts of applause.

The First Vice-President.—You have heard the president's address; what will you do with it? There are so many valuable suggestions contained in it that it seems to me it would be proper for some one to make a motion that a committee be appointed to act on them.

On motion of Dr. X. C. Scott of Ohio, the address of the president was referred to a committee of five to consider the points therein set forth.

Dr. Wingate announced the program and order of arrangements for the sessions. He next announced that the hour for the general sessions would be 11 A. M. in place of the afternoon as printed in the program.

Dr. Wingate announced the names of delegates that had been registered from the different States. He called attention to a reception at the Pfister hotel in the evening, and to a carriage ride for the wives of the visiting physicians.

President McGuire then presented Mr. Ernest Hart, of London, Eng., editor of the *British Medical Journal* in the following words: I take great pleasure in introducing to you this morning one of England's most distinguished physicians. I need only mention his name as editor of the greatest medical journal in the world, the *British Medical Journal*. (Applause.)

Mr. Hart was received with round after round of applause, and, when quiet was restored, spoke as follows:

Dr. McGuire, and Gentlemen of the American Medical Association:—I was not prepared for this public honor, and you will pardon me if I should fail

to find myself in bringing to you the greetings of the British Medical Association, on behalf of which I attend here as a delegate. You need no assurance from me of the profound interest, the esteem and high hopes which that Association entertains for you, and the remarkable rapidity with which this Association is now developing. I can assure you that the profession in Great Britain watch with great interest the whole proceedings of this Association, and have seen with the most profound satisfaction how high and great a stand it has taken on important subjects of medical ethics, in dealing with which you have proceeded upon lines which are unanimously accepted and endorsed by the Association of which I have the honor to be a member. (Loud applause).

The president then announced that Mr. Hart would address the Association Thursday morning on the subject of "Cholera."

The president called for the report of the treasurer, which was read by the permanent secretary as follows:

The treasurer has the honor to report the balance in the treasury to June 3, 1893, inclusive, as \$5,844.78. The itemized statement of receipts and expenditures, which has been audited by the board of trustees of THE JOURNAL and found correct, will be duly set forth in the columns of THE JOURNAL.

RICHARD J. DUNGLISON, *Treasurer*.

June 6, 1893.

On motion, the report was received.

The permanent secretary reported as follows:

REPORT OF THE PERMANENT SECRETARY.

Gentlemen:—I respectfully report that in accordance with your instructions, I forwarded to each medical college in America a copy of the preamble and resolutions of the American Medical College Association, at the same time requesting from each a copy of the annual announcement. A response was received from nearly if not every college, in many instances cordially endorsing the spirit of the resolutions, some insisting upon even a higher standard.

The resolution adopted by this Association is as follows:

Resolved, That the American Medical Association most heartily endorses the efforts of the Association of American Medical Colleges to advance the cause of medical education, and demands of the medical colleges of the United States the adoption of and observance of a standard of requirement which shall in no respect fall below the minimum of requirements adopted by the said college association.

A copy of the resolution providing for the appointment of a committee to meet a similar committee from the State Medical Association of New York, and from the State Medical Society of New York, was forwarded to each member of that committee, and to each of the medical bodies named. Acknowledgments were received, and after the annual meeting of the State Medical Society of New York, the following was received:

The Medical Society of the State of New York.

DR. W. B. ATKINSON, Secretary Am. Med. Association.

Dear Doctor:—Replying to your favor of the 11th, your communication regarding a committee of conference was presented to the Society by the president at our annual meeting last week, and referred to a committee for consideration.

The following resolution was reported by the committee and adopted by the Society:

"Resolved, That the Medical Society of the State of New

York deems it unwise at this time to appoint any committee of conference with the American Medical Association upon the subject of medical ethics, as requested by that distinguished body, but the Medical Society of the State of New York ventures to express the hope that the American Medical Association will at no distant day take such action as will remove the merely technical obstacle to the most cordial cooperation between the two societies."

As related to the subject I may further report to you that the following was recommended to the Society by the same committee—the committee on the president's address—and was adopted, the by-laws being amended accordingly:

"The Society reserves to itself the right to punish its members for any unprofessional conduct. The determination of what shall be considered unprofessional conduct shall rest with the Society. If at any time charges are preferred against a member of the Medical Society of the State of New York, these charges shall be referred to a committee which already exists for a similar purpose. This rule shall take the place of paragraph 8, chapter 6, of the by-laws, as well as the rules adopted by this Society in February, 1882.

Signed,

F. C. CURTIS, *Secretary*.

All of which is respectfully submitted.

WM. B. ATKINSON, *Permanent Secretary*."

On motion of Dr. Dudley S. Reynolds of Kentucky, the report was received.

The president then called for the committee on Rush monument.

Dr. George H. Rohé of Maryland, on behalf of the committee (the chairman, Dr. A. L. Gihon, being absent) reported progress, and asked that the committee be continued.

On motion the report was received and the committee continued.

In the absence of Dr. C. G. Comegys of Ohio, chairman of the committee on a secretary of public health, the permanent secretary read the report as follows:

REPORT OF SPECIAL COMMITTEE APPOINTED TO PETITION CONGRESS TO CREATE A DEPARTMENT AND A SECRETARY OF PUBLIC HEALTH.

Mr. President:—At the last meeting of the Association in Detroit, in June, 1892, your committee reported a hopeful progress of our appeal to Congress to establish a department and a medical secretary of public health. Our petition with an accompanying bill had been introduced in both houses and referred to appropriate committees. A full hearing was given to the chairman of your committee before those committees. The chairman of the Senate committee, while willing to extend the powers of the existing quarantine office, as administered by the marine hospital service, did not think it possible to get from Congress an appropriation for its establishment under the existing circumstances.

The members of the house committee seemed disposed to favor such a department; the chairman of it saying that he thought that the health of the people was certainly of as much consideration as that of cattle, which was so expensively investigated by the agricultural department. But the first session of the fifty-second Congress adjourned and no report had been made by either house.

In the meanwhile the development of cholera in Europe and the menace of its transportation to our shores, led to a renewed activity and grant of power to the quarantine office that made it impossible to secure any further action of Congress on the proposition to establish a department of public health.

Your committee entertains most favorable opinions in regard to the activity and intelligence which is displayed by the marine hospital service for the preservation of our seaports from epidemics of for-

eign origin, and for its regulations to prevent their transportation from State to State along our commercial lines; but it does not seem reasonable that all the benign measures of preventive medicine should be administered by a single organization whose functions relate to so limited a field, in comparison with one which relates to the demography and hygiene of the cities, towns and agricultural regions of our country at large, and the supervision of which would be far more intelligent and effective by a medical secretary of state than by the secretary of the treasury.

The medical profession of the United States has nothing to ask of Congress for its own aggrandizement, but simply pleads for the welfare of the people, with whose social existence it is more intimately acquainted than any other class of citizens; that our knowledge and duties apply to everything connected with their employments, their habitations, food, mental and moral development; that while the fearful yet preventable diseases which desolate their homes give us large revenues, yet the obligations of our beneficent profession compel us just as earnestly to attempt to destroy the causes of sickness as to save them from its ravages. Therefore we made an earnest appeal to Congress to organize a comparatively inexpensive department in the government, that would be able to give aid by concerted action with the State boards of health in the detection and destruction of the germs of deadly diseases that infest the air, water and food not only in our coast cities, but in the homes of our agricultural classes.

The organism which is called medicine, like every other product of man's constructive genius, is striving to attain perfection, and to accomplish this it should be sustained in all its scientific undertakings by the coöperation of national and State legislation and by the people at large, for whose health and happiness all of its efforts are put forth to prevent disease.

The medical profession is worthy of the distinction we seek for it, because it is a learned profession. Its methods of practical research are the same as those employed by lawyers, engineers and machinists. While it has not the quantitative precision of mathematical investigations, it has the qualitative precision that attaches to all sciences of observation, and the opinions of physicians in a given case are of as much value as those of lawyers, ministers, statesmen, architects and engineers. The clinician proceeds in his investigations regulated by the canons of logic; indeed, the laws of logic which have guided the world of thinkers for more than twenty centuries were invented by a physician.

The question may arise whether such a department would subserve the interests of any particular school. We reply that amid all the apparent disparity in medical practice there is one true severe unity, and to attain this all true physicians are continually striving. With the advance in the way of higher education the differences in modes of treatment will gradually disappear. There is no disputation in medical science in regard to anatomy, physiology, pathology, chemistry, physics or preventive medicine. The general modes of practice will become gradually unified.

We now insert a copy of the bill which was introduced in both houses of the last Congress, and which still remains on the files of the committees to which it was referred:

A BILL TO ESTABLISH A DEPARTMENT OF PUBLIC HEALTH.—*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled*, That there shall be established a Department of Public Health. There shall be appointed from civil life by the President, by and with the advice and consent of the Senate, a Medical Secretary of Public Health, who shall be intrusted with the management of the Department herein established. He shall be paid an annual salary of ———. He shall, with the approval of the President, provide suitable offices for the Department, and shall employ such assistants and clerks as may be necessary.

SEC. 2. That it shall be the duty of the Department of State to obtain from consular officers at foreign ports and places all available information in regard to sanitary conditions of such ports and places, and transmit the same to the Department of Public Health; and the Secretary of Public Health shall also obtain, through all sources accessible, including State and municipal authorities throughout the United States, weekly reports of the sanitary condition of ports and places within the United States, and shall prepare, publish, and transmit to the medical officers of the marine hospital service, to collectors of customs, and to State and municipal health officers and authorities, weekly abstracts of the consular sanitary reports and other pertinent information received by said department. The said department also shall, as far as it may be able, by means of the voluntary coöperation of State and municipal authorities, of various general and special hospitals and sanitariums, of public associations and of private persons, procure and tabulate statistics relating to marriages, births, deaths, the existence of epidemic, endemic and other diseases, especially those of a degenerative character, such as malignant growths and affections of the circulatory, respiratory, secretory and reproductive organs, and data concerning the fruit of incongruous marriage and transmissibility of insane, alcoholic, syphilitic, nervous and malignant types of constitution. He shall also procure information relating to climatic and other conditions affecting public health, especially in reference to the most favorable regions in the United States for the cure or relief of the chronic diseases of the several organs of the body, especially of consumption. He shall also obtain information in a sanitary point of view of the health and comfort of the laboring classes. He shall seek through the State boards of health information in regard to the healthiness and comfort of public school houses. He shall, so far as he can, further collective investigations in regard to the common diseases of an inflammatory and febrile character that prevail among the people. He shall coöperate with State boards of health, the signal service, the medical departments of the army, navy, and marine hospital service, and unify and utilize their work so as to make the department of public health a repository of the most important sanitary facts that concern the public comfort. Besides the reports of the state of public health, which he shall make from time to time, the secretary of public health shall make an annual report to Congress, with such recommendations as he may deem important to the public interests; and said report, if ordered printed by Congress, shall be done under the direction of the department. The necessary printing of the department shall be

done at the government printing office, upon the requisition of the secretary of public health, in the same manner and subject to the same provisions as that of other public printing for the several departments of the government.

SEC. 3. That the medical secretary of public health shall frame rules, under the direction of the president, which shall serve for the instruction of consular officers of the United States and of the medical officers serving at any foreign port. In compliance with these rules every master of a vessel destined for a port of the United States shall be furnished with a certificate containing a detailed statement of the inspection of the vessel, cargo, crew and passengers, and of the sanitary measures carried out, at the expense of the vessel; or if such measures are not carried out, instant warning shall be transmitted to the medical secretary of public health, who shall immediately notify the quarantine authorities of the port of destination.

SEC. 4. That the medical secretary of public health shall make investigation, both in the United States and, if necessary, in foreign countries, into the nature, origin and prevention of contagious and epidemic diseases, as well as the cause and conditions of particular outbreaks in disease in the United States, and shall publish and distribute documents relating to the prevention of disease.

SEC. 5. That the president is authorized, when requested by the medical secretary of public health, and when the same can be done without prejudice to the public service, to detail officers from the several departments of the government for temporary duty, to act under the said department of public health to carry out the provisions of this Act, and such officers shall receive no additional compensation, except for actual and necessary expenses incurred in the performance of such duties. When a detail of such officers can not be made, the medical secretary of public health, approved by the president, may employ such experts, and for such a time and in such manner as the funds at the disposal of the department may warrant.

SEC. 6. That to defray the expenses incurred in carrying out the provisions of this Act, the sum of _____ dollars, or so much thereof as may be necessary, is hereby appropriated, to be disbursed, with the approval of the president, under the direction of the said secretary of the department. That this Act shall take effect sixty days after its passage, within which time the medical secretary of public health may be appointed.

SEC. 7. That an Act entitled, "An Act to prevent the introduction of contagious and infective diseases in the United States, and to establish a National Board of Health," approved March 3, 1879, and all other acts and parts of acts conflicting with the provisions of this Act, are hereby repealed.

It will be seen in the terms of the above bill that a secretary of public health would represent the medical consciousness of our government, and he would be one to whom we could all look for the exploitation of measures that will direct continuous scientific and collective investigation in regard to endemic, epidemic, and all diseases; the enlightenment of the people in regard to sanitary ways of living; the dissemination of information respecting the most favorable places of residence for those afflicted with such chronic diseases as asthma, rheu-

matism, neuralgia and consumption; the examination of food and drink and medicinal springs; the collection and tabulation of vital statistics at large, and in various localities, such as in the congested areas of our great cities and among the various races which are so rapidly populating our country; the influence of different employments upon the health of working people—men, women and children; the degeneration of the muscular, nervous and mental constitutions through excesses of any kind, and the transmissibility of vicious types of constitution to descendants. He would be able to cooperate with State boards of health, the signal service, the medical departments of the army, navy and marine hospital service, unify and utilize their work, and thus make the department of public health the repository of the most important facts that concern the welfare and comfort of the people, and his duties will steadily grow broader and stronger in adaptability to public needs. In fine, the creation of such a department by Congress will be a declaration that the health of the people is a supreme law.

The complementary value of this new department will be an increased rank and dignity of the medical profession amongst the people, a more prolonged and thorough culture and practical training of students, until at length the doctor shall be recognized as a citizen possessed of the highest attainments for the well being of society.

In reporting the failure of your committee to procure the sanction of Congress in this first effort to establish a department of public health, there should not be felt any discouragement of final success: indeed, we think scarcely any one believed it to be possible to gain our point, but as an outcome of several years of well directed effort and supported by a powerful constituency.

Although several thousand appeals for assistance to all points of the land were made, yet the responses amounted to less than 1,000, and these came mainly from the regions in valleys of the great western rivers and the Pacific coasts. The apathy that exists along the eastern coasts is truly surprising. Special appeals made to colleges and great societies elicited only a few replies. But we were comforted by approving votes from the American Public Health Association and the State boards of health and State medical societies of Pennsylvania, Ohio, Kentucky, Tennessee, Georgia, Louisiana, Missouri, Illinois, Indiana, Kansas, Michigan, Texas and California. The replies from individuals in answer to our circular were warmly in favor of the project, and assurances were given that the representatives and senators of Congress would be urged to assist the bill to its adoption.

The difficulties attending the introduction of bills into Congress are very serious. After a first reading they are referred to committees, where the delays are great: to be successful it requires a constant watchfulness of their progress, and members of a committee grow weary of pleas for a favorable report. From the experience we have gained in our efforts to secure a consideration of our bill we are led to believe that the best course to pursue will be in an appeal to President Cleveland to recommend in his annual message the establishment of a department of public health. The president in his address in New York city, at the dedication of the new Academy of Medicine, so extolled the dignity and public worth

of the medical profession that we feel much confidence that he will favor our project, if it be presented to him by a committee of well known physicians and surgeons who would represent the great divisions of the union. Congress would then be obliged to seriously consider the subject, and if the profession in all parts of the country shall press a favorable action by their representatives, there can not be a doubt of a successful issue. It is a mighty, and we may say an irresistible force that can be brought into play to accomplish this movement. There are at least 75,000 members of the regular profession in the United States, and who are generally men of large influence, and who can prove to the people that this is a measure of the utmost public utility, and without any relation whatever to partisan politics. Thus they will be led to demand of their Congressmen its adoption.

In conclusion, we submit to the American Medical Association for its adoption the following resolutions:

Resolved, That this Association will continue its efforts to secure the creation of a department and a secretary of public health at Washington.

Resolved, That the president of this Association appoint ten members, representing different regions of the union, who shall prepare as early as may be an appeal to His Excellency, Grover Cleveland, president of the United States, to lay before Congress in his next annual message a recommendation that a department and a medical secretary of public health is a measure that is calculated to promote in a large way the public welfare.

Resolved, That this petition shall be presented, as far as may be possible, by the committee in person.

Respectfully submitted,

C. G. COMEGYS,
WM. B. ATKINSON,
N. S. DAVIS,
For the Committee.

Dr. W. T. Bishop of Harrisburg, Pa., moved that the report of the committee be referred to the same committee to which will be referred the president's address, and that the committee be continued. Seconded.

Dr. John B. Hamilton of Chicago, moved as a substitute that the report be adopted, that it be printed in THE JOURNAL, and that the committee be continued. Seconded and carried.

Dr. John A. Larrabee of Louisville, Ky., asked if any committee had been appointed.

The president replied, no.

The permanent secretary asked on behalf of the committee that they be permitted to enlarge the committee as they might deem necessary, and on motion of Dr. I. N. Quimby of New Jersey, this was granted.

The next report was that of the committee on Pan American Medical Congress, which was read by the chairman, Dr. C. A. L. Reed of Cincinnati, O., as follows:

REPORT OF THE COMMITTEE ON PERMANENT ORGANIZATION OF THE PAN AMERICAN MEDICAL CONGRESS.

To the American Medical Association:—Your committee appointed at Washington to effect a permanent organization of an inter-continental American medical congress, begs leave to submit its final report as follows:

An organization has been effected under the style and title of the Pan American Medical Congress, to

be held at the city of Washington, D. C., September the 5th, 6th, 7th and 8th, A. D. 1893, under the presidency of Prof. Wm. Pepper, M.D., LL.D., of Philadelphia. The details of the organization are set forth in the published preliminary announcement of the Congress, copies of which are respectfully submitted herewith, in both English and Spanish, as a part of this report.

Since the publication of this preliminary announcement an organization has been effected in Paraguay. Your committee is therefore pleased to state that an organization of the Pan American Medical Congress exists in every State and Territory of the United States, and in every remaining country and colony of the Americas, including the West Indies and Hawaii.

A provision has been adopted since the foregoing publication whereby every medical society, national, colonial and local, has been made a constituent organization of the Congress.

The committee begs leave to report further that the organization which has been effected as above and which, by the authority you have conferred upon it, has been and is already very actively engaged in carrying out the practical ends of the Congress.

The senate and house of representatives at the first session of the last Congress adopted a joint resolution, authorizing the president to extend an invitation to the governments of the western hemisphere to send official delegates to the meeting, and to appoint similar delegates on behalf of our own government. This official invitation has been issued through the department of State and all replies so far received have been in the nature of acceptances. The president has indicated that the government of the United States will be represented at the Congress by six delegates. At the last meeting of the executive committee of the Congress a resolution was adopted directing that in view of the Columbian exercises in progress in America this year, and in view of the relations which have become intimate between the United States and Spain, that the government of the latter country be requested to send delegates to the Congress. It was thought that the exceptional relations of amity existing between the two countries would warrant a course which has been avoided with regard to all other European countries out of deference to the interests of the International Congress which is to meet in Rome.

The national Congress at its last session appropriated fifteen thousand dollars (\$15,000) for the purposes of entertainment of the meeting.

The president of the United States has consented to open the Congress in person and to extend the courtesy of a reception at the White House to delegates and their families.

A special feature of the Congress will be the proceedings of the sections on hygiene, climatology and demography and on marine and hygiene and quarantine. The proceedings of these sections will be largely of the nature of a sanitary conference with particular reference to practical questions of public health and of imminent importance.

With this object in view, every municipality of the three Americas, including the West Indies and Hawaii, has been invited to send an official delegate, and a very large number of acceptances have already been received.

The titles of several hundred papers, accompanied

in many instances with abstracts, have already been received from representative medical writers in the English, Latin, French and Portuguese countries. This, of itself, assures the scientific success of the Congress.

Invitations have been extended to representative European scientists to be the guests of the Congress, and a number of acceptances have been received.

In conclusion, your committee begs leave to express its appreciation of the spontaneous response to its appeal for funds in the form of advance registration fees from the public-spirited representatives of our profession in America. Let it be remembered, no registration fees will be accepted from members of the Congress residing outside the United States. Although money has been realized from advance registrations in amount sufficient to pay some of the preliminary expense of organization, a still larger sum is needed with which to meet accumulated obligations.

It should be held in mind that the Congressional appropriation, meager as it is, will be available only for purposes of entertainment at the time of the meeting, and that the expense involved in publication, correspondence and clerical work is necessarily very heavy and must be met at once. The members of the profession are therefore again urgently requested to register at once by paying the fee (\$10) to the treasurer, Dr. A. M. Owen, Evansville, Ind. Those who thus become members of the Congress but who may be prevented from attending the meeting will receive a set of the transactions, which, of themselves, promise to be worth more than the amount of the registration fee.

In submitting this, its final report, your committee begs leave to thank the Association and its executive officers for cordial support, and the medical press for its energetic and efficient aid in promoting this earnest movement for the unification of the medical profession of all the Americas.

Respectfully submitted on behalf of the committee,

CHARLES A. L. REED, *Chairman*.

Dr. N. C. Scott moved that the report be adopted, and that the thanks of the Association be extended to the committee for the efficient work they had done.

Seconded and carried.

Dr. J. McFadden Gaston of Atlanta, Ga., moved to reconsider the action of the Association relative to the general sessions, and fix the hour of meeting at 12 M. Seconded.

Dr. A. M. Owen of Evansville, Ind., moved that it be laid upon the table, and after considerable discussion participated in by Drs. Owen, Ferguson and Gaston, was carried.

On motion, the Association then adjourned to meet at 11 A. M. on Wednesday.

WEDNESDAY, JUNE 7.—SECOND DAY.

The Association met at 11 A. M., and was called to order by the president.

The chairman of the committee of arrangements announced the receptions for the evening, etc.

The president announced as the committee on his address Dr. J. F. Hibberd of Richmond, Indiana; C. A. Lindsley of New Haven, Conn.; W. T. Bishop of Harrisburg, Penn.; T. P. Satterwhite of Louisville, Kentucky; Nicholas Senn of Chicago, Illinois.

The permanent secretary announced the committee on nominations as follows:

COMMITTEE ON NOMINATIONS.

Alabama, S. M. Hogan; Arkansas, James T. Jelks; California, J. H. Parkinson; Colorado, Robert Levy; Connecticut, James E. Root; District of Columbia, Robert Reyburn; Delaware, J. H. Wilson; Florida, C. R. Oglesby; Georgia, F. W. McRae; Illinois, E. Fletcher Ingals; Indiana, J. L. Thompson; Iowa, A. S. Wright; Kansas, ———; Kentucky, T. P. Satterwhite; Louisiana, ———; Maine, C. W. Foster; Maryland, J. Lee McComas; Massachusetts, C. B. Belt; Michigan, G. V. Voorhees; Minnesota, J. F. Fulton; Mississippi, ———; Missouri, C. H. Hughes; Montana, ———; Nebraska, James O. Carter; New Hampshire, ———; New Jersey, I. N. Quimby; New York, John J. Truax; North Carolina, ———; North Dakota, I. N. Wear; Ohio, A. B. Walker; Oregon, ———; Pennsylvania, H. A. Hare; Rhode Island, ———; South Carolina, C. F. McGahan; South Dakota, ———; Tennessee, D. D. Saunders; Texas, ———; Vermont, E. S. Allbee; Virginia, H. M. Taylor; Washington, J. Fred Essig; West Virginia, A. H. Thayer; Wisconsin, B. C. Brett; United States Army, A. C. Girard; United States Navy, ———; Marine Hospital Service, G. W. Stoner.

He read invitations for the next session to be held at Asbury Park, New Jersey, and from Hot Springs, Arkansas, all of which on motion of Dr. Dudley S. Reynolds were referred to the committee on nominations.

On motion it was resolved that in view of facilitating the work of the Sections and in the general interest of the Association, the election of officers of the Association shall take place on Thursday, and that after Thursday no executive business shall be transacted at the general sessions of the Association in accordance with a recommendation of the general business committee.

Dr. A. H. Ferguson of Winnipeg, Manitoba, was invited to a seat upon the platform.

The permanent secretary read an invitation from the Chamber of Commerce which, on motion, was accepted with thanks.

Mr. Good, chairman of the delegation from the American Pharmaceutical Association, was invited to a seat on the platform.

Dr. H. A. Hare of Philadelphia, Penn., then read the address on general medicine. He selected for his subject, "A Brief Review of Some Practical Advances in Medicine and Therapeutics."

The president announced that Mr. Ernest Hart of England, would read his paper on Thursday at 11:30 A. M.

The permanent secretary read the report of the librarian as follows:

REPORT OF LIBRARIAN.

To the President and Members of the American Medical Association:—Your librarian would respectfully report as follows:

The usual number of books, journals, etc., have been received during the year.

At the meeting one year ago it was voted that the librarian be empowered to transfer to the Newberry Library at Chicago, all the property constituting the so-called library of the Association to be held in trust until called for by the Association.

This last clause was objected to by the trustees of the Newberry Library because they said there is

nothing to hinder the American Medical Association from waiting until the books are bound, catalogued, arranged and made accessible, and then demanding their return.

During the year they have been assured by our trustees that this is, in their estimation a permanent loan, so long as the Newberry Library carries out its part of the agreement. This is not satisfactory to them.

I would therefore recommend that the terms of transfer of the library be left to the board of trustees and the librarian, with power to act, and that such action be final.

GEO. W. WEBSTER.

On motion the report was accepted and the plan adopted as proposed by the librarian.

The permanent secretary read the report of the board of trustees as follows:

REPORT OF BOARD OF TRUSTEES.

To the President and Members of the American Medical Association:—The board of trustees of the Association have the honor to report that the proceedings of the last year have been harmonious and without particular incident.

THE JOURNAL has been regularly issued each week and the papers read at the last annual meeting have all been published with the exception of those published elsewhere. The publication in full of Association papers in other journals prior to their publication in the journal of the Association so far detracts from the usefulness of the journal that the trustees felt bound to instruct the editor to rigidly adhere to the old rule of the Association, which required the exclusion from the volume of Transactions of every paper that had been previously printed elsewhere.

Your trustees have been unable to accomplish the improvements in the equipment of THE JOURNAL that they contemplated in the report made to the Association last year, owing to lack of funds. They were for a time contemplating a large reduction in the receipts for advertising owing to the resolution passed by the Association at its last meeting as follows:

Resolved, That the attention of the trustees of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION be directed to the fact that the Code of Ethics prohibits all commendatory mention or advertisements of secret preparations and that said trustees are hereby instructed to respect said prohibition in the future conduct of the official journal of the Association.

The trustees at their meeting held in Detroit immediately after the annual meeting, in carrying into effect the express wish of the Association, instructed the editor that:

"When the editor is in doubt about the character of an advertisement, he shall refer the same to the committee on advertising, and that an advertisement of a proprietary medicine shall be accepted in the discretion of committee when the proprietors thereof shall furnish the complete formula."

The total expenses of THE JOURNAL have been \$24,369.47, and the receipts \$16,469.36, leaving the net cost to the Association \$7,520.11. The balance in the hands of the Association treasurer while gratifying is still too little to warrant any material change in THE JOURNAL equipment. It is only proper to mention that as an asset of THE JOURNAL, there is due from advertising for the last quarter, \$1,901.10. There are unfilled orders for advertising

amounting to \$11,012.83, which will be available for expenses during the coming year.

Four thousand two hundred and eighty-nine (4,289) copies of THE JOURNAL are issued to members, but the list must be purged of about five hundred names, and five hundred and sixteen (516) copies are issued to subscribers. THE JOURNAL has been sent in exchange to the reputable medical journals published abroad.

CASUALTIES.

Since the last annual report, the board has sustained a great loss in its membership, by the death of the venerable W. W. Dawson, M.D., long a member of the board and lately president of the Association. His ripe experience in professional affairs, and his extensive personal acquaintance with the members of the Association made his services of peculiar value and his death leaves a vacancy that will be difficult to fill.

Dr. John V. Shoemaker of Philadelphia, tendered his resignation in May of this year, and it was regretfully accepted by the board. Dr. Shoemaker has served for nearly three years as chairman of the committee on advertising, and his long experience in medical journalism has been of great service.

LIBRARY.

Your trustees have recently had a conference with the librarian in regard to the transfer of the library to its new location: they fully endorse his views upon the subject, and respectfully invite the attention of the Association to his report.

ALONZO GARCELON, *President*.

JOHN B. HAMILTON, *Secretary*.

On motion, the report was received and its views relative to the library were adopted.

The president then called for the report of the committee on revision of the constitution, which was read by Dr. Henry D. Holton, of Vermont, chairman as follows:

REPORT OF COMMITTEE ON REVISION OF CONSTITUTION, BY-LAWS AND CODE OF ETHICS OF THE AMERICAN MEDICAL ASSOCIATION.

To the President and Members of the American Medical Association, Gentlemen:—Your committee, to which was committed the task of studying the constitution and by-laws of the American Medical Association, with a view of determining whether they could be changed in any manner so as better to promote the development of the Association, and better to advance the interests which it represents, have had the same under most careful consideration, and submit the following, which has already been published in the journal of the Association and other medical periodicals:¹

HISTORY.—In May, 1846, a medical convention was held in the city of New York to consider measures for the elevation of the medical profession, in all its

¹ In view of the fact that the names of the entire committee were appended to the report, as already published, a word of explanation is proper. At a meeting of the committee in Buffalo, N. Y., March 22, 1895, every sentence of this proposed Constitution was separately gone over by the committee, and each member asked to suggest alterations. All of the alterations agreed upon were incorporated in the report. Finally, the document as a whole was unanimously adopted and signed by each member of the committee present and by Dr. Nelson afterward. On May 16 Dr. Didama notified the chairman of this committee that he desired his name withdrawn from this report. Accordingly, this was done. The majority of the committee, by additional study made since the Buffalo meeting, were more firmly convinced that the alterations proposed are vital to the best prosperity of the Association.

constituent elements, and for the promotion of its organic unity. After much discussion it declared that a national organization of every State and interest was demanded. Committees were appointed to draft a constitution, by-laws and a code of ethics, and to report at a meeting to be held the following year. Accordingly, in May, 1847, representatives of the profession of the United States met in Philadelphia, heard and discussed reports of the committees, and adopted a code of ethics, a constitution and by-laws, which, with slight alterations, have continued to direct the organized movements of the profession till now. In compliance with the instruction of the Association in June, 1892, the following constitution and by-laws are formulated for the purpose of promoting the best activity of a general medical organization of the profession in North America:

CONSTITUTION.—*Name.*—This organization shall be known as the American Medical Association.

MEMBERS.—Membership shall be limited to members of the several affiliated State medical societies recognized thereby or represented therein. As membership in these societies is open to all reputable practitioners in each State, the membership in the American Medical Association is open to all reputable physicians in North America.

All persons now members of the Association shall continue such so long as they remain in good standing in their State society, and pay their annual dues. If they desire to participate in any annual meeting, they shall present to the committee of arrangements of said meeting a certificate from the officers of their State or local society to the effect that their standing is good, and one from the treasurer of the Association showing that all dues are fully paid. To all presenting such certificates the committee of arrangements shall issue the credentials necessary for active participation in the annual meeting.

Any member of a recognized State or local medical society may become a member of the Association by presenting to the committee of arrangements at any annual meeting a certificate from the officers of his society showing that he is in good standing therein, and a certificate from the treasurer of this Association showing that he has paid the annual dues.

All members of the recognized State or local medical societies who are unable to attend the annual meeting may become members of the Association by sending to its treasurer, at any time, a certificate from the officers of his society of his good standing, and remitting the annual dues.

All members who have fulfilled these two conditions shall have equal rights and equal responsibilities in the Association, and regularly receive the Association journal.

All State medical societies, with their constituent local societies, shall be recognized by the American Medical Association if they accept its Code of Ethics.

Members of Canadian and Mexican medical societies shall be admitted to membership upon the same terms as those in the United States. The regular graduates of such schools and colleges of dentistry as require of their students a standard of general education and a term of professional study equal to the best class of medical colleges in this country, and

embrace in their curriculum all the fundamental branches of medicine, differing chiefly by substituting practical and clinical instruction in oral and dental surgery in place of practical and clinical instruction in general medicine and surgery, are recognized as members of the regular profession, and eligible to membership upon the same terms as other members.

No person shall be permitted to take part in any annual meeting until he or she has completed the conditions of membership at that meeting, and can exhibit certificates to this effect from the committee of arrangements. But suitable persons may be introduced as guests, either at the general session or the Section sessions, and be invited to engage in the scientific and social exercises of the meeting without taking part in the transaction of business.

MEETINGS.—The regular meetings shall be held annually at such time and place as may be advised by the business committee and ordered by the Association. The details of these meetings are stated in the by-laws.

OFFICERS.—The officers of this Association shall be a president, four vice-presidents, one secretary, one assistant secretary, a treasurer and a librarian. These officers shall hold office during one year or until their successors are elected, and shall enter upon their duties immediately after election.

The President shall preside at the meetings, preserve order and decorum in debate, giving a casting vote when necessary, and perform all the other duties that custom and parliamentary usage may require. At the opening session he shall deliver an address to the general meeting, not to exceed thirty minutes in length.

The vice-presidents may be called upon to assist the president in the performance of his duties and during his absence, or at the request of the president, one of them shall officiate in his place.

The secretary shall record the minutes of the general sessions and authenticate the proceedings; give due notice of the time and place of the next annual meeting; notify all members of committees of their appointment and the duties assigned to them; hold correspondence with other organized medical societies, both domestic and foreign, and carefully preserve the archives and unpublished transactions of the Association.

For his personal expenses in attending the annual meetings the secretary shall draw upon the treasurer of the Association.

The assistant secretary shall aid in recording and authenticating the proceedings of the Association; serve as a member of the committee of arrangements, and perform all the duties of the secretary, temporarily, whenever that office shall be vacant by death, resignation or removal.

The treasurer shall have the charge and management of the funds of the Association. He shall give the board of trustees bonds for the safe keeping and proper use and disposal of his trust. Through the same board he shall present his accounts, duly authenticated, at each regular meeting. He shall each month furnish the president of the board of trustees with a statement of accounts for the guidance of the board in its expenditures. For his personal expenses in attending the annual meetings, he shall draw upon the treasury through the president of the board of trustees.

² The words "State society," as used in this report, are intended to refer to and include the District of Columbia and every general medical society in any Territory that has the same scope and purpose as our State societies.

The librarian shall receive and preserve all property in books, pamphlets, journals and manuscripts presented to or acquired by the Association, record their titles in a book prepared for this purpose, and acknowledge the receipt of the same. He shall deposit these documents in such place and manner as the Association may direct, after advising with the board of trustees.

STANDING COMMITTEES.—The committee of arrangements shall be composed of at least seven members, of whom the assistant secretary shall be one, all residing in the place at which the Association is to hold its next annual meeting. It shall provide suitable accommodations for the meeting; shall verify and report upon the credentials of membership; shall issue credentials of membership to such as fulfill the conditions; shall publish the rules governing the reading and discussion of papers and the order to be observed in the business of the general and sectional meetings; shall receive and announce all papers communicated, and, with the several Section secretaries determine the order in which the papers shall be read and discussed; shall prepare a list of members present on a separate roll for convenience in calling the ayes and nays, when these are demanded; it shall have each member register his name, address, and place of stopping during the annual meeting, and the name of the Section that he will attend and in which he will vote for Section officers. The expenses of hall for general meeting, of rooms for the Sections, and cards of membership shall be met by the Association. Should the committee incur other expenses it must meet them from its own resources.

This committee shall be nominated by the business committee, and elected by the Association.

The board of trustees shall consist of nine members, three of whom shall be elected annually on nomination of the business committee, and serve for three years. This board shall manage all matters relating to finance and publication. Thus it must provide for and superintend the publication and distribution of all such proceedings of the Association as may be ordered to be published, in such manner as the Association may direct. In doing this it shall have authority to appoint an editor and such assistants as may be necessary, and determine their salaries. It shall procure and control such materials as may be necessary for the performing of the duties assigned it. To the board or its representatives must be delivered during the annual meeting, or as soon thereafter as is possible, by the secretary of the Association and by the Section secretaries or executive committees, all records of meetings, papers or discussions, and such other documents as were ordered published by the Association.

All moneys received by the board of trustees or its agents, resulting from the discharge of the duties assigned them, must be paid to the treasurer of the Association, and all orders for disbursements of money, in any way connected with the work of publication, must be endorsed by the president of the board of trustees. It shall further be the duty of the board of trustees to hold the official bond of the treasurer for the faithful execution of his office; to annually audit and authenticate his accounts, and present a statement of the same to the Association. This report must specify the character and cost of all publications of the Association during the year;

the number of copies still on hand, and the amount of all other property belonging to the Association, under its control, with such suggestions as it may deem necessary. It shall yearly publish a list of members, their addresses in full, year of admission, the constitution and by-laws and code of ethics, and such other information as may be deemed useful, for yearly distribution to the members at each meeting.

At the opening of each volume it shall publish a disclaimer by the Association for any responsibility for opinions expressed in the volume.

To this board must be referred all propositions for the appropriation of money, to be considered and reported upon before the final action on the same by the Association.

The general business committee shall be composed of the several Section executive committees, selected as hereafter described. It shall hold daily meetings during the sessions of the Association, and such other meetings as may be deemed necessary for the performance of its duties. All matters of business not provided for by the committee of arrangements, the board of trustees, the judicial council and special committees, shall be referred to it without debate, for consideration and report to the Association. In general, this business committee shall give especial attention to the interests of the Association as a whole, and through these interests shall seek the development of the Sections; it shall consider all matters of business referred to it by the Association, and report upon them at the earliest possible moment, when the Association may accept or reject said report, as it may deem best.

It shall be the duty of this committee to seek the removal of such obstacles as interfere with the cordial coöperation in the Association of all competent, honest practitioners of rational medicine throughout this continent, and to promote every means by which coöperation shall be effected and maintained.

Further, the general business committee shall make and present the nominations for officers of the Association and its standing committees, and recommend the time and place of the ensuing meeting. It shall appoint its own officers, and adopt rules for the orderly performance of its duties. Finally, it is expected that it will perform all its duties in the interests of the advancement of scientific medicine.

The judicial council shall consist of twenty-one members, whose duty it shall be to take cognizance of and decide all questions of an ethical or judicial character which may arise in connection with the Association. It is distinctly understood that neither this council nor the Association shall take cognizance of differences arising between the members of any State or local society. Such differences must be settled by such societies themselves, and the Association will accept such decision as final.

Of the twenty-one members first appointed, the first seven named upon the list shall hold office one year, and the second seven two years. With these exceptions, the term of office of the members of the judicial council shall be three years, seven being nominated by the business committee yearly, and elected by the Association. The council shall organize by choosing a president and secretary, and shall keep a permanent record of its proceedings. The decisions of said Council shall be final upon all ethical questions referred to it by the Association, and

must be accepted without debate. Such decisions shall be reported to the Association as soon as practicable.

All questions of a personal character, including complaints and protests, and all questions on the ethical standing of medical societies shall be referred at once, when presented to the Association, to the judicial council, and without debate.

INCOME AND EXPENSES.—The income of the Association shall be derived from subscriptions to its journal and advertisements therein, from specific publications and voluntary contributions for specific objects.

Its funds may be appropriated for the expenses of halls, for general sessions and Section meetings, and for cards of membership, and such other expenses of the annual meeting as are essential for the conduct of the routine work; for meeting the necessary personal expenses of the secretary and treasurer while attending the annual meetings and in conducting the necessary correspondence; for publications; for enabling standing committees to fulfill their respective duties and conduct their correspondence; for the encouragement of scientific investigation by prizes, and for defraying the expenses of scientific investigation under the instruction of the Association, where such investigation has been accompanied with an order upon the treasurer to supply the funds necessary for carrying it into effect.

AMENDMENT.—No amendment or alteration shall be made in any of these rules except at an annual meeting next subsequent to that at which such amendment or alteration may have been proposed, and then only by the voice of three-fourths of all the members present. Provided, however, that when an amendment is properly under consideration, and an amendment thereto is offered germane to the subject, it shall be in order, and if adopted, shall have the same standing and force as if proposed at the preceding meeting of the Association.

BY-LAWS.—1. *Order of Business.*—The order of business at the annual meetings of the American Medical Association shall be subject to the vote of three-fourths of all the members in attendance. Until thus altered, except when suspended, it shall be as follows:

1. Calling the meeting to order by the President.
2. The report of the committee of arrangements on the credentials of members, after the latter have registered their names and addresses; and on such other matters as it desires to present to the Association.
3. The reception of guests of the Association.
4. The annual address of the President.
5. The reception of reports from all special committees.
6. The reading and consideration of reports of standing committees, the board of trustees, business committee and judicial council.
7. New business and instructions to standing committees.
8. The report of the business committee and the election of officers of the Association; the selection of next place of meeting.
9. Reports from the executive committees of the Sections.
10. Reading of the minutes by the Secretary.
11. Unfinished and miscellaneous business.
12. Adjournment.

MEETINGS.—The annual meetings of the American Medical Association shall be held in May if the place be in the South, and in June if the place be in the North. The day of opening of the general sessions shall be on the first Tuesday after the first Monday of the month selected. The hour on the opening day shall be 10 A. M., and on the following days 4:30 P. M.

SECTIONS.—The several Sections shall hold their first meeting at 1:30 P. M. on the first day, and at 9 A. M. and 1:30 P. M. thereafter daily.

The several Sections are as follows:

1. Practical medicine and physiology.
2. Obstetrics and diseases of women.
3. Surgery and anatomy.
4. State medicine.
5. Ophthalmology.
6. Diseases of children.
7. Dental and oral surgery.
8. Medical jurisprudence and neurology.
9. Dermatology and syphilis.
10. Laryngology and otology.
11. Materia medica and pharmacy.

Officers of Sections.—The officers of each Section shall consist of a chairman, secretary and executive committee. The chairman and secretary shall be elected annually immediately after the Section is called to order on the afternoon of the second day. During the session of the first day, the chairman shall appoint a nominating committee, consisting, if practicable, of ex-chairmen of the Section, to report at the opening of the afternoon session of the second day. Election shall be by ballot.

The executive committee of each Section shall, when first appointed, consist of three members from among those who have been in attendance at the sessions of the Section for at least two years, to serve for one, two and three years respectively; and thereafter the retiring chairman of the Section shall take the place upon the committee of the retiring member. It shall be the duty of the executive committee, in conjunction with the chairman and secretary, to give special attention to the interests of their own Section. Thus they shall secure the annual republication from *THE JOURNAL* of the work of the Section, its papers and discussions, lists of officers, lists of all members of the Section, with their addresses, and rules adopted by the Section for the conduct of its work, securing from the Section the funds needful for the performance of this purpose. They shall carefully edit all publications of the Section, and secure a creditable mechanical execution of the same. They shall also take such measures as in their judgment will secure the cordial coöperation of all reputable workers in their special fields in North America. If desired by the Section, they will make arrangements for an inexpensive annual dinner for their individual Section.

Further, these several executive committees of the Sections shall meet together and form a general business committee of the Association, with powers and duties described under the head of the general business committee.

The chairman of each Section, in addition to his duties as a presiding officer and a member of the executive committee, shall read a short address at the opening of the session on the first day. In conjunction with the secretary, he shall secure from members papers to be read, and arrange for the discussion of the same. This order of Section work he

shall communicate to the chairman of the committee of arrangements at least one month before the annual meeting.

No paper read before the Sections shall occupy more than twenty minutes. If it be longer, the writer should make such an abstract as will bring it within the limit, and present it for discussion. No person shall discuss any paper more than once, or speak longer than fifteen minutes without unanimous consent.

No paper shall be read before any Section that is not in such condition as to pass at once from the reader's hands to the executive committee of the Section. Within thirty days, said committee must forward the entire work of the Section to the board of trustees, with such recommendations as it deems proper. But no paper shall thus be sent by an executive committee that does not fall under one of the following heads:

1. Such as may contain and establish new facts, new modes of practice or new principles of real value.

2. Such as may contain the results of well devised original experimental research.

3. Such as present so complete a review of the facts on any particular subject as to enable the writer to deduce therefrom legitimate conclusions of importance.

Other papers containing material of more or less value shall be returned to their authors, to be published as they may desire, with the statement that they were read before said Section of the American Medical Association.

In general, it is expected that each executive committee will make every effort to secure for its special Section, papers and discussions which will fairly represent the active workers in their department of medicine, and otherwise promote cordial good will among the several workers therein.

PUBLICATION OF PAPERS AND REPORTS.—All papers and reports must be so prepared as to require no material alteration or addition at the hands of authors. All Section work must be in the hands of the trustees within thirty days after the annual meeting. Proofs will be sent authors, but they should be returned at the earliest possible moment, and unless returned within two weeks, will be omitted from *THE JOURNAL*. Every paper requiring it shall be illustrated at the expense of the Association, should it accept the same for publication. Every paper accepted is understood to be contributed exclusively to the Association journal, though brief abstracts of the same may be published elsewhere. In case of an article that is of especial value, the result of expensive research or experimentation, the trustees, at their discretion, may compensate the writer in accord with the usual price of such work.

The board of trustees has the power to reject any paper referred to it, unless especially instructed to the contrary by the Association.

DUES.—Each member of the Association shall pay his annual subscription to *THE JOURNAL* of five dollars before receiving from the committee of arrangements his membership ticket to the annual meeting. The evidence of this shall be the treasurer's receipt for the five dollars. Any member failing for one year to pay this subscription shall be dropped from the rolls.

DELEGATES.—The president of the American Medical Association is authorized to appoint members,

desiring such appointment, as delegates to the several medical and scientific bodies that are in sympathy with the Association.

DUTIES OF MEMBERS.—No one shall be permitted to address the Association unless he first shall have given his name and address, which shall be distinctly announced from the chair. If desirable, the member may be required to go forward and speak from the platform.

Failure to do special committee work shall cause the offender to forfeit a continuance of the same appointment, or a place upon any other, unless satisfactory excuse is offered.

It is expected that every member will, in all ways available to him, promote the interests of the medical profession as represented in the Association. He is expected to conform to all its regulations in spirit and letter until they may be altered by the action of the body which formulated them.

CONDITIONS EXCLUDING FROM MEMBERSHIP.—All societies that reject the code of ethics of the American Medical Association, or intentionally violate or disregard any article of the same, are thereby of their own choice debarred from membership.

THE PREVIOUS QUESTION.—When the previous question is demanded, it shall take at least twenty members to second it. When the main question is put under force of the previous question and negatived, the question shall remain under consideration, the same as if the previous question had not been enforced.

NEW BUSINESS.—No new business, or resolutions by members, shall be introduced at the general session of the Association, except on the first and fourth days of the meetings.

ELIGIBILITY TO OFFICE.—In the election of officers and the appointing of committees by the Association and its president, they shall be confined to members present at the meeting, except in the committee of arrangements.

MEDICAL AND SURGICAL EXHIBIT.—There shall be no medical and surgical exhibit, under the authority or recognition of the American Medical Association, other than that made before the several Sections under the supervision of the business committee. All that is new and of value to the scientific or practical physician can thus find an appreciative audience. Experience has shown that all other exhibits detract from the work in Sections, and so lessen the attractiveness of the annual meetings to those whose presence is desirable. Signed:

H. D. HOLTON, *Chairman*.

LEARTUS CONNOR.

DANIEL E. NELSON,

BENJAMIN LEE.

[EXPLANATORY NOTE.—It will facilitate understanding the proposed constitution and by-laws if the following considerations are kept in mind: First. The keynote to all the changes suggested is "the advancement of scientific medicine as represented in the Sections." The Sections include all the Association. Hence, the elevation of the Sections to a more active participation in the conduct of affairs simply locates responsibility differently, and, it is believed, more satisfactorily. It will be noted that the Sections are given no power to act independently of the Association. No act or recommendation of their representatives becomes binding upon the Asso-

ciation until the general body has so voted. The business committee from the Sections simply thinks over the problems committed to it, and advises the Association in accordance therewith. It is believed that this business committee is so constituted as to fairly represent the entire Association and the interests of the Sections. The only additional duty imposed upon this committee beyond that it already possesses is the nominating of the officers of the Association and recommending the place of meeting. The officers and the place of meeting so obviously affect the prosperity of the Sections that it seems wise for them to make recommendations. It is believed that the fact that all questions will hereafter be fully studied by representative committees of such character as to command confidence, will attract to the Association thousands who have hitherto stood aloof; will promote the feeling of fair play between individuals, and give assurance to all that hereafter no illy considered action will be taken by this great body.

SECOND. Radical changes are made in the conditions of membership. It will be seen that but one kind of members is provided for. To discriminate between the worthy and unworthy has been referred to the several State societies. If these societies endorse an individual as worthy in their several States, then the American Medical Association accepts them without question, and enrolls them among its members on their payment of the annual dues. This membership can be retained indefinitely by the annual presenting of a certificate of good standing in the State society of which the individual is a member, and paying the annual dues. Thus it is possible for every member of the profession in the North American continent to become and remain an active member of the Association. No person can become a member of the Association who does not become a member of a State society and retain his active membership therein. It will be noted that the term "State society" is made to include the Territories and the District of Columbia. It also includes Mexico and Canada upon the same conditions as the States. Distinguished gentlemen from other countries are cared for as guests either of a Section or the general Association.

THIRD. The general meetings of the Association are reduced to the shortest space possible consistent with the doing of the necessary routine work. On the other hand, the Section meetings are lengthened to the greatest possible extent. The reputation of the Association, its power to advance the bounds of medicine, its attractiveness to the tens of thousands of doctors, must lie in the Section activities. Only here can be obtained adequate compensation for absence from active practice, with its necessary financial losses; for long and tiresome journeys; for expenditure of a considerable sum from the scanty surplus of the average doctor's income.

Meanwhile, it is believed that the new features provide for the more satisfactory transaction of all business that may come before the Association. By adopting the document as presented, the Association will have provided for the study of every question by experts previous to its consideration by the Association. It thus will be able to act with more tact and wisdom.

It is believed that the adoption of the proposed organic laws will promote the best interests of the

Association, of its Sections, of scientific medicine, of the several State societies, of every intelligent practitioner of medicine, and hasten the organic unity of the profession of the entire North American continent. As such, it is commended to the consideration of the Association.

Dr. Henry D. Didama of New York city, read a minority report, which is as follows:

REPORT OF THE MINORITY OF THE COMMITTEE TO WHOM
WAS REFERRED THE REVISION OF THE CONSTITUTION
AND BY-LAWS OF THE AMERICAN
MEDICAL ASSOCIATION.

The minority of the committee on revision of the constitution and by-laws, respectfully reports:

That after a study of the printed new constitution and a comparison of it with the present one, more careful, thorough and prolonged than was possible at the meeting of the committee in Buffalo, he has felt constrained to disapprove some of the radical changes adopted by the committee, and to withdraw his name from the report. He believes that the retention of the government of the Association in the hands of delegates chosen annually as their representatives by State and local societies would continue to be a safeguard against possible evils of great magnitude, and would secure the stability and promote the welfare of the Association.

He also believe that taking away from the representatives of the various State and county societies assembled at the annual meetings, the right to choose the nominating committee and bestowing it upon the business committee would be unfair, unjust and deservedly unsatisfactory to the great majority of the Association. Signed,

HENRY D. DIDAMA.

Dr. John B. Roberts of Philadelphia, moved the adoption of the report of the majority.

Dr. N. S. Davis of Chicago, called attention to the law which declares that all amendments must lie over for one year.

The president decided this in order, and said the amendments *must* lie over.

Dr. Holton then read the report of the committee on the revision of the code of ethics, as follows:

REPORT OF THE COMMITTEE ON THE REVISION OF THE
CODE OF ETHICS.

Mr. President and Members of the American Medical Association:—Your committee appointed to consider the advisability of amending your code of ethics, have had the subject under consideration, and at one time outlined the changes, which they believed desirable. The matter was committed to one of its members to write out. However, pressure of other affairs, beyond his control, prevented his doing so. In addition, the following new questions have pressed for consideration: What should be the relations of the profession to railroad and other corporations, to accident insurance companies and other societies, to free dispensaries, to hospitals, and to other institutions? The data for answering these questions were not at hand and would require much time to collect and carefully study. We therefore desire at this time to report progress and ask for further time to perfect our report. We would, however, suggest the following as tending to promote the spirit of equity between physicians and so increase professional prosperity:

FIRST: We would omit all sections of the code that describe the obligations of patients to their physicians, and of the public to physicians. The reason for this suggestion is that the code is not designed either for patients or the public, and so the sections are superfluous. This omits the ten sections under Art. 11, on pages 5, 6, 7, and 8, and Art. 11, on page 20.

SECOND: We suggest the placing in the same list with the copyrighting of medical books and other similar work, the patenting of all mechanical appliances used in medicine or surgery. The code says nothing respecting the copyrighting of medical publications, and we find no good reason why it should say anything respecting the patenting of mechanical devices.

THIRD: We recommend the more accurate definition of the term, "consultation," as we find good reason to believe that serious estrangement has arisen between physicians because of the different ideas they attached to this term. The code of ethics, page 14, second line from the top, says that in a "consultation" the responsibility must be equally divided between the medical attendants—they must equally share the credit as well as the blame of failure. With this statement before us, it is clear that there can be no consultation when one physician meets another for the purpose of obtaining from him an account of the case, or pertinent facts of family history, or a record of the past management of the case, in order that he may more intelligently assume the entire responsibility of its future conduct. Thus the existing code of ethics of the American Medical Association defines a consultation substantially as a meeting of doctors to discuss a case to the end that they may equally share in its further management. By the same authority a consultation is not a meeting of physicians with a case, in which one gets all the facts possible from the other or others, as a preliminary to his assuming entire responsibility in its future conduct.

From these data it is clear that usually the specialist does not consult with the general practitioner. He simply obtains all the facts the general practitioner possesses, preparatory to assuming full control of the case.

There are many other occasions for the meeting of medical men in connection with cases of sickness, that are in no sense consultations according to the existing code. Hence we think that in the interest of scientific accuracy, there should be a discrimination made in the study of consultations as present conditions differ widely from those of forty or more years ago.

Having promised this much, your committee recommends the alteration of Art. IV, Sec. 1, page 11, code of ethics, to read as follows: "A thorough medical education furnishes the only presumptive evidence of professional abilities and requirements, and ought to be the only acknowledged right of an individual to the exercise and honors of his profession. Nevertheless as the good of the patient is the sole object in view, and this is often dependent upon personal confidence, no intelligent practitioner who has a license to practice from some medical board of known and acknowledged legal authority to issue such license, and who is in good moral and professional standing in the place in which he resides, should be refused consultation when it is requested by the patient."

FOURTH: It is suggested that it would be wise to re-write the code in phraseology so plain as to make it a practical common sense document for daily guidance in the performance of our various duties and an aid in meeting responsibilities incident to our professional life.

Finally, your committee found that in but few medical colleges has this document been taught, and never as a portion of the required curriculum.

It is believed that professional success of the best sort depends as well upon a practical knowledge of medical manners and medical ethics as upon anatomy, physiology, pathology, therapeutics or surgery. To be master of the rules of conduct by which our neighboring doctors can be made our friends and kept such, so that the people may see that the medical men who serve them form a band of brothers devoted to the service of suffering humanity, is to possess a most desirable professional resource.

The committee finds the code of ethics contains the essentials for the successful conduct of a medical career, as these have been learned by the actual experience of the best members of the medical profession, from the earliest dawn of history to the day on which it was written.

It sincerely trusts that the present discussion will lead to a more intelligent appreciation of its truths by all physicians, and especially that hereafter it will be made a text book in every medical college, and an accurate knowledge of its contents be made a condition of receiving the degree of doctor of medicine.

The committee deprecates all efforts to abolish, belittle, distort, ridicule or otherwise lessen its hold upon the profession. It is a heritage, representing at once the best characteristics of our profession during all its history, and a scientific document that points out the line of greatest prosperity in the future.

It would seem better far, that in the spirit of scientific students we patiently inquire whether in any respect the changes incident to the last half century warrant any modifications of statement of any portion of this document, in the interest of good to all and ill to none, for the increased prosperity of medical art and science and a more united professional power over those whom we serve.

[Signed]

HENRY D. HOLTON,
LEARTUS CONNOR,
DANIEL T. NELSON,
BENJ. LEE,

Committee.

Dr. Didama submitted the following minority report:

REPORT OF THE MINORITY OF THE COMMITTEE ON REVISION OF THE CODE OF ETHICS OF THE AMERICAN MEDICAL ASSOCIATION.

The minority of the committee on revision has the honor to report against any kind of revision of the ethical code:

1. Because the language of the code is clear, concise and accurate, and conveys to the mind the soundest ethical principles derived from the moral maxims of all civilized nations, compiled and admirably arranged by practical men of acknowledged ability and wisdom.

2. Because the code is explicit, liberal, broad, humane, and founded on truth, justice and reason.

and is free from magisterial assumption or oppressive exaction.

3. Because the code contains full particulars, without superfluous details, for the guidance of all physicians, for the instruction of beginners and for the information of the people.

On motion of Dr. John A. Larrabee of Louisville, Ky., the committee was continued as at present constituted, and that the matter be brought before each of the State societies.

Dr. Roberts again demanded action upon the report, and asked why the president had decided as he did.

The president replied simply because it was unconstitutional.

At this juncture a motion to adjourn was made, but negatived.

Dr. N. S. Davis made the following report:

REPORT OF THE COMMITTEE TO CONFER WITH COMMITTEES OF THE MEDICAL SOCIETY OF THE STATE OF NEW YORK AND THE MEDICAL ASSOCIATION OF THE STATE OF NEW YORK.

At the annual meeting of this Association held in Detroit, June, 1892, the following resolution was adopted:

Resolved, That a committee of five be appointed by the president of this Association, who shall be instructed to meet a like committee from the State Medical Society of New York and the New York State Medical Association, for the purpose of adjusting all questions of eligibility of members of said State Medical Society of New York to membership in this Association; said committee to report at the next annual meeting of this Association.

Your committee appointed in accordance with the foregoing resolution respectfully reports as follows:

Soon after the adjournment of the annual meeting of this Association in Detroit, 1892, the secretaries of the Medical Society of the State of New York and of the New York State Medical Association were notified of the action of this body and were requested to bring the same before their respective societies. In due time this was done, and the New York State Medical Association promptly appointed a committee for the proposed conference. But the Medical Society of the State of New York, at its annual meeting in February last, unanimously

Resolved, That it would be unwise to appoint a committee of conference as suggested by the American Medical Association, and it was hoped that that Association would take such steps as would remove the "technical differences" which prevented the most cordial relations between the two bodies.

When it is remembered that the movement resulting in the appointment of your committee at our last meeting was in compliance with the request of the friends of the Medical Society of the State of New York; and when it is further remembered that the so-called "technical differences" here alluded to, consisted in nothing less than a deliberate abolition of the national code of ethics, which was equivalent to a voluntary withdrawal from further connection with this national organization, it must be apparent to all that it would be most unwise for this body to make any propositions relating to the Medical Society of the State of New York.

Respectfully submitted,

N. S. DAVIS, *Chairman*,
JOHN H. RAUCH,
DUDLEY S. REYNOLDS.

The report was received with great applause.

On motion of Dr. Bishop, the report was received and filed.

On motion, the Association adjourned until Thursday 11 A. M.

THURSDAY, JUNE 24—THIRD DAY.

The Association was called to order by the president at 11 A. M.

After some announcements by the chairman of the committee of arrangements, the president introduced Mr. Ernest Hart of London, England, who delivered an address on cholera.

On motion of Dr. U. O. B. Wingate, seconded by the permanent secretary and several other members, it was resolved that the cordial thanks of the Association be and are hereby extended to Mr. Hart for his able and interesting address on "The Prevention and Possible Extinction of Cholera;" that the address be printed and copies of it be forwarded to the executives of States and State boards of health of America, calling their attention to the great influence of impure and inadequate water supplies in the spread of the disease, and to the urgent importance, in view of the possible advent of cholera in this country, of taking measures for the temporary remedy of all such defects and the permanent supply of the populations in their respective districts with pure water.

Dr. Henry H. Mudd of St. Louis, Missouri, read the address on surgery, the title of his paper being "Surgical Problems."

Dr. John G. Truax of New York city, chairman of the committee on nominations, reported as follows:

OFFICERS FOR 1894.

President:—James F. Hibberd of Richmond, Indiana.

First Vice-President:—John A. Wyeth of New York city.

Second Vice-President:—Isaac N. Love of St. Louis, Missouri.

Third Vice-President:—T. Murrell, Arkansas.

Fourth Vice-President:—U. O. B. Wingate of Milwaukee, Wisconsin.

Treasurer:—Richard J. Duglison of Philadelphia, Penn.

Permanent Secretary:—William B. Atkinson of Philadelphia, Penn.

Librarian:—George W. Webster of Chicago, Illinois.

Assistant Secretary:—H. Bert Ellis of Los Angeles, California.

Trustees:—To fill vacancy by death of Dr. W. W. Dawson, L. S. McMurtry of Louisville, Kentucky, for three years; E. E. Montgomery of Philadelphia, Penn.; John B. Hamilton of Chicago, Illinois; E. Fletcher Ingals of Chicago, Illinois.

Judicial Council:—X. C. Scott of Ohio; George W. Stoner of United States Marine Hospital Service; James T. Jelks of Hot Springs, Ark.; J. H. Murphy of St. Paul, Minn.; J. McFadden Gaston of Atlanta, Georgia; Thomas A. Foster of Portland, Maine; Isaac N. Quimby of Jersey City, New Jersey.

To make the Address on Medicine:—Charles H. Hughes of St. Louis, Mo.

To make the Address on Surgery:—Ernest LaPlace of Philadelphia, Pa.

To make the Address on Hygiene:—George H. Rohé of Catonsville, Md.

Place of Meeting in 1894:—San Francisco, Cal.

Chairman of Committee of Arrangements:—R. H. Plummer of San Francisco, California.

The nominating committee recommend to the Association that an annual salary of \$500 be attached to the office of permanent secretary.

[Signed] J. G. TRUX, *Chairman*.
H. A. HARE, *Secretary*.

Dr. Robert Reyburn moved to adopt the entire report, which was seconded by Dr. I. N. Quimby.

Dr. Dudley S. Reynolds of Kentucky, moved as an amendment, that the report be adopted with the exception of the place of meeting and the committee of arrangements. Seconded.

Dr. George Rohé of Maryland, moved, as a substitute, that the place of meeting be changed to Baltimore, and that the name of Dr. Julian J. Chisholm be substituted as chairman of the committee of arrangements, and Dr. Howard A. Kelly of Baltimore, as assistant secretary. Seconded.

After eloquent and ringing speeches by Dr. J. H. Parkinson of California, Dr. L. Connor of Michigan, Dr. Henry O. Marcy of Massachusetts and Dr. N. S. Davis of Illinois, in behalf of California, a vote was taken and the report as presented was adopted amid great applause.

Dr. J. F. Hibberd, secretary of the judicial council, reported as follows:

The judicial council to whom last year was referred the charge against S. V. Abel, that he is not entitled to register as a member of the American Medical Association, have had the same under consideration, and find that said Abel is not entitled to membership in this Association, and recommend that his name be stricken from the rolls.

JAMES F. HIBBERD, *Secretary*.

He also reported on the president's address as follows:

Mr. President:—The committee of the Association named to consider the recommendations of President McGuire in his annual address have had the matter under consideration, and report that the whole document is a thoughtful and judicious presentation of the affairs of the Association, and an intelligent review of salient points of medical progress that may be helped by present attention of the Association.

The first formal recommendation of the address concerns the agitation in regard to the code of ethics, wherein President McGuire suggests that the revision of the code be referred to the State societies for an expression of their wishes in the premises, and in this behalf your committee submit the following resolution:

Resolved, By the American Medical Association, that the respective State medical societies entitled to representation in this Association and through them their affiliated local societies are hereby requested to consider the matter of revision of the code of ethics and report to this Association at its next annual meeting; and if any alteration be deemed advisable each State society so deciding to specially indicate the part to be changed and write out in full the new form proposed.

President McGuire's second recommendation is that State medical societies should encourage the legal establishment of examining and licensing boards for supervision of persons entering our professional ranks. Your committee offer the following resolution in this behalf:

Resolved, That the State medical societies in such States as do not have now legal boards for the examination of

persons desiring to become practitioners in such States are requested by this Association to use their influence to have the States to create such boards by statute.

President McGuire's third recommendation is that this Association should use its influence to prevent the improper sale of poisonous and mischievous proprietary medicines. In this behalf your committee submit the following:

Resolved, That the several State medical societies are hereby requested to use their influence to have statutory restraint in their respective States placed upon the sale of poisonous and mischievous medicines, except when prescribed by legally qualified persons.

The fourth recommendation of President McGuire is that this Association use its best efforts to have the national government take charge of frontier quarantine, and your committee present a resolution as follows:

Resolved, By the American Medical Association, that it is the sense of this Association that the general welfare of the people of the United States demands that the general government establish, maintain and execute on the frontier of the nation, quarantine embracing all the best methods known to sanitary science.

The last recommendation of the president is that this Association join with the American Public Health Association in urging the national government to establish a bureau of public health. To give this suggestion fruitful results, your committee offer the following:

Resolved, That the president of this Association appoint a committee of three to act in conjunction with a committee of the American Public Health Association to make efforts to induce the Congress of the United States to establish a medical bureau and commissioner, who shall be the chief sanitary officer of the general government.

Respectfully submitted by order of the committee.

JAMES F. HIBBERD, *Chairman*.

W. T. BISHOP, *for the Committee*.

On motion, the report was received and the resolutions were adopted.

On motion of the permanent secretary, the following physicians from Canada were invited to seats and to participate in the doings of the Association: Drs. William Oldright of the Canadian Medical Association, R. Bruce Smith, Riordan, Elliott and McGonnan.

These gentlemen were recommended by Dr. R. Harvey Reed of Mansfield, O.

On motion of Dr. John B. Roberts of Philadelphia, it was resolved that all amendments to the by-laws of the Association now on the calendar be postponed until the meeting of next year, to be taken up on the second day of the general session.

The president appointed as the committee to confer with the American Public Health Association regarding the establishment of a medical bureau, as previously mentioned, the following: Drs. U. O. B. Wingate of Milwaukee, Wis., Jerome Cochrane of Montgomery, Ala., and J. H. Parkinson of California.

On motion, the Association adjourned till Friday 11 A. M.

FRIDAY, JUNE 9—FOURTH DAY.

The president called the Association to order at 11 A. M.

Dr. Walter Wyman of Washington, D. C., delivered the address on State medicine, his subject being the "Extinction of Contagious Diseases."

The permanent secretary read an invitation from the American Pharmaceutical Association to send

delegates to their meeting at Chicago, August 14, 1893.

He also presented the following recommendations from the general business committee:

RECOMMENDATIONS.

The following resolutions were adopted by the general business committee, and are submitted to the approval of the Association:

Resolved, That no paper shall be read by title in any Section which is not actually in the hands of the officers of the Section, and that the secretary of the Association be instructed to communicate this action to each Section.

Resolved, That the general business committee hereby request the officers of Sections to communicate to this business committee any general resolutions passed relating to the conduct of the Sections.

Resolved, That we recommend that the treasurer and committee of arrangements adopt measures to secure by courteous circular letters as large a registration of members as possible by mail three or four weeks before each annual meeting. Also that one month after the annual meeting, each member who has not paid his annual dues be sent a notice that dues have not been paid, and that he be requested to remit the same; further, that similar notice be sent at each of the two succeeding months to those who do not remit; and that those who still fail to remit be drawn on at sight at the beginning of the next month, having been notified that they would be thus drawn on at the time specified.

(Signed) GENERAL BUSINESS COMMITTEE.

On motion of Dr. Liston H. Montgomery of Chicago, these resolutions were adopted.

From the Section on Materia Medica and Pharmacy, the following was offered:

Resolved, That the American Medical Association recommend that the next edition of the United States Pharmacopœia, soon to be issued, be at once practically adopted by physicians in prescribing and pharmacists in compounding. It also advises the general adoption by physicians and pharmacists of the National Formulary issued by the American Pharmaceutical Association, and that the teaching medical and pharmaceutical colleges adopt these works as text books.

On motion, the resolution was adopted.

Dr. J. E. Boylan offered the following amendment to the by-laws:

Amend by-law No. 2 relating to Sections. The first clause of paragraph V shall be amended to read as follows:

It shall be the duty of every member of the Association, who proposes to present a paper or report to any one of the Sections, to forward either the paper or a title indicative of its contents and its length, to the secretary of said Section at least one month before the annual meeting at which the paper or report is to be read.

On motion, it was unanimously adopted.

The Section on Practice offered the following which was unanimously adopted:

WHEREAS, As affecting the public health and furnishing future opportunities for outdoor recreations, the prevention of deforestation, the preservation of fish and public waterways, and the perpetuation of different species of game in their natural haunts, largely depend upon government supervision and national legislation, therefore be it

Resolved, That the selection and reservation, by the national government of mineral spring sites, parks, and forest reserves, as future health resorts and summer camping and "outing" places for all people who wish to use them, are measures highly appreciated by this Association as a body.

Resolved, That such strict enforcement of laws by the general government and the several interested States of the Union, for the preservation of forests, fish and game, are hereby strongly recommended as will more effectually accomplish and perpetuate the objects of these reserves

than the lax methods at present in vogue are likely to do.

A communication from Dr. J. M. Toner of the committee on Jenner centennial, reported progress and asked permission to fill a vacancy in the committee owing to the death of Dr. Thomas F. Wood of North Carolina.

The report was received and permission granted.

The President announced as delegates to the Eleventh International Medical Congress the following: A. Ravogli, Ohio; W. H. Myers, Indiana; P. S. Conner, Ohio; S. W. Fowler, Ohio; T. W. McKay, Pennsylvania; Liston H. Montgomery, Illinois; F. H. Ewing, Washington, D. C., and A. J. Stone, Minnesota.

On motion of Dr. Liston H. Montgomery, the president and permanent secretary were authorized to appoint other delegates, if deemed desirable.

Delegate to the American Pharmaceutical Association in August, at Chicago, 1893, Dr. Frank Woodbury of Philadelphia.

The permanent secretary read the following as officers of the Sections:

Surgery and Anatomy:—Chairman, J. B. Roberts, Philadelphia; secretary, F. W. McRae, Atlanta.

Practice of Medicine:—Chairman, H. A. Hare, Philadelphia; secretary, W. H. Washburn, Milwaukee.

Obstetrics and Diseases of Women:—Chairman, Joseph Eastman, Indianapolis; secretary, George I. McKelway, Philadelphia.

Neurology and Medical Jurisprudence:—Chairman, J. G. Kiernan, Chicago; secretary, Frank P. Norbury, Jacksonville, Ill.

Ophthalmology:—Chairman, A. R. Baker, Cleveland, O.; secretary, L. H. Taylor, Wilkesbarre, Pa.

Laryngology and Otology:—Chairman, E. Fletcher Ingals, Chicago; secretary, J. F. Fulton, St. Paul, Minn.

Materia Medica and Pharmacy:—Chairman, Frank Woodbury, Philadelphia; secretary, F. E. Stewart, New York.

Diseases of Children:—Chairman, W. S. Christopher, Chicago; secretary, Frank A. Churchill, Chicago.

State Medicine:—Chairman, Geo. W. Stoner, U. S. Marine Hospital Service; secretary, C. H. Sheppard, Brooklyn.

Dermatology and Syphilography:—Chairman, A. H. Ohmann-Dumesnil, St. Louis; secretary, L. F. Frank, Milwaukee.

Physiology and Dietetics:—Chairman, I. N. Love, St. Louis; secretary, E. Cutter, New York.

Oral and Dental Surgery:—Chairman, W. H. Fletcher, Cincinnati; secretary, E. S. Talbot, Chicago.

Dr. Robert Reyburn offered the following resolution:

Resolved, That the thanks of the Association be and are hereby extended to the committee of arrangements, the citizens of the city of Milwaukee and Mrs. Wingate for the generous entertainment and boundless hospitality displayed by them to the members of this Association during their session in this city.

Resolved, Further that our cordial thanks be extended to the president and other officers of the Association for the able and efficient manner in which they have conducted our proceedings; also to the press for reports of the general sessions and sections. Seconded.

Here Dr. N. S. Davis arose and addressed the Association as follows:

It is with great pleasure that I have attended the forty-fourth annual meeting of this Association. I

have had the pleasure of attending forty meetings out of forty-four, and not one out of the forty-four that I have attended has been any other than the most pleasant, genial occasion, and it was apparent to every fellow member that attended them that they were largely contributory to bringing together members from the various parts of our country, making fresh new acquaintances, mingling the young with the old, making us all feel better. Not only that—when we got home in our narrow round of practice we felt as though we had new blood infused into us and pursued our work with renewed zest and vigor. Wherever we met we had the same warm, genial reception as here, and the women have received us very cordially, and I for one, I wish not only to give the ladies of Milwaukee a formal vote of thanks, but to express it from the bottom of my heart. (Loud applause.)

The resolution was then put and unanimously carried.

President McGuire in retiring said:

I desire to return my thanks for the courtesy and kind treatment extended to me by the permanent secretary and others who have aided me so efficiently in the discharge of my duties.

I now take pleasure in introducing to you your newly-elected president, Dr. James F. Hibberd of Richmond, Ind. (Applause).

Dr. Hibberd was enthusiastically received. He said:

Mr. Chairman and Members of the American Medical Association, Ladies and Gentlemen:—To my mind the events of the last day or two have verified in a conspicuous manner the proverb which says: "It is the unexpected that happens." I am sure the events which have transpired, authorizing me to stand before you and make my acknowledgment for the distinguished honor you have conferred upon me, are among the great surprises of a life not now very short. The fact that it did come unexpectedly in nowise lessens the great appreciation I have for what you have done. It leads me to recognize the responsibility that devolves upon me in the position I occupy. That I am unable to find words to thank you for what has been done to me personally, is not surprising. I apprehend that my immediate predecessor felt precisely the same, and that the forty odd presidents of this Association that preceded him have been in a like predicament. I assure you what little I have of mental endowment to advise, and physical energy to execute, shall be devoted to the best interests of the Association for the ensuing year. (Applause). I can but renew my thanks for the personal considerations that enter into your actions. So much for the present.

A word about the future: We have been invited to California, and we have accepted the invitation. I assure you that although the delegates and representatives of the State of California have promised you much, they will give you more. Forty-four years ago I went as surgeon of a steamship around the American continent and landed in San Francisco, and I know something of the beauties of that city and its vicinity. I know the Californians have the heart and ability to make the Sections among the most important, useful and educational that we have ever had. Aside from that, I know that they have the ability and courage to take hold of you and show you among the grandeurs of that magnificent State

more of the physical beauties and physical enjoyment of our annual meetings than any State that has been mentioned to-day, because they have the foundation to do it. It is comparatively a new country. Everything is fresh. I assure you, I look forward to the time of meeting there as one of the happiest moments of the general progress of this Association. If you understand the matter, not one of you will miss the opportunity of going to California next year, but will prepare yourselves for a great deal of enjoyment there, and if you do not get it, then you may count that I am not a prophet. (Loud applause.)

Dr. James T. Jelks resigned from the judicial council because he was already a member of the general business committee.

On motion, the resignation was accepted.

The president then declared the Association adjourned to meet in San Francisco, Cal., on the first Tuesday in May, 1894.

WILLIAM B. ATKINSON,

Permanent Secretary.

LISTON H. MONTGOMERY,

Assistant Secretary.

NECROLOGY.

DR. CHARLES CARROLL LEE of New York City, died May 11, 1893, aged fifty-four years. He was born in Philadelphia and brought up in Maryland, graduated at the Emmetsburg College, obtained his M.D. from the University of Pennsylvania in 1859, and was interne at the Wills Hospital. Appointed to the army as assistant surgeon in 1861, he remained in that position until the war closed. About 1867 he took up his permanent residence at New York.

Dr. Lee had before giving up his position in the army been stationed in New York as a member of the medical examining board, and had made many friends and a nucleus to a private practice of promising proportions, especially on lines of gynecological and general surgery. He early became identified with St. Vincent's and the Woman's State Hospital. His other hospital billets included those at the St. Elizabeth's and Charity, also the Foundling Asylum. In the Post-graduate school he held the chair of diseases of women. He was a member of the Academy of Medicine and other scientific bodies; of the County Society he had recently been the presiding officer. In 1863 he married Helen Parrish, daughter of the late Dr. Isaac Parrish of Philadelphia, and his wife and five children survive him. He had been actively engaged in practice until three or four weeks ago, when he was taken ill with pleurisy. His membership in the American Medical Association dates from 1872.

DR. RAWDON MACNAMARA, one of the foremost surgeons of Dublin, died recently after a long and most honored career. Like his father before him, his life was largely spent in connection with the Royal College of Surgeons of Dublin, and the Meath Hospital. His appointments were chiefly surgical, but he held an honorary degree as M.D. from the University of his native city. In the British Medical Council he had been for several years an active member, representing therein the Royal College of Surgeons of Ireland. He was of that same institution the senior Councillor and senior emeritus professor. The chair formerly filled by him at the college had been that of materia medica; the last edition of Neligan's "Medicines and Their Uses" was edited and almost re-written by Macnamara. His fatal illness was pneumonia, contracted soon after he had passed his seventy-first birthday.

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MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate of statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, JUNE 24, 1893.

THE MILWAUKEE MEETING.

A pleasurable memory of that occasion will be the thought of the completeness of the work accomplished by the committee of arrangements. The hall for the general sessions was commodious and conveniently accessible, while the sections were all well provided for either in the same building or close by. The hotels were full, and yet there seemed to be a room provided for every one.

DR. U. O. B. WINGATE and associates deserve a full measure of commendation, while GOVERNOR PECK was a whole reception committee by himself, always present at the right place at the right time.

Wisconsin physicians should be very proud of their governor, and we would that the physicians of all the States could say they had a State executive his equal in culture and breadth of mind.

The social receptions and entertainments were elegant, sumptuous and hospitable. Families which are blessed with royal homes, deferred previously planned European tours in order that they might open the doors of their mansions to receive the members of the American Medical Association as their guests.

The new Pfister Hotel is not surpassed for elegance by any hostelry in any city, being only favorably compared with the princely Waldorf in New York.

The scientific work of the Sections has not been surpassed at former meetings.

The attendance shows a registration of 867.

The officers selected for the ensuing year are generally acceptable. This is particularly the case with the presiding officer, DR. JAMES F. HIBBERD of Indiana, than whom there is no abler, better man in the whole medical profession of America. Though well along in years, he is abreast of the youth in medicine. DR. HIBBERD is one of the very few whose

minds do not decay or grow dim with the advance of years.

With an election of four new trustees, there was necessarily a practical reorganization of the board, under which the editor was not a candidate for reelection. His official relations with THE JOURNAL will cease with this issue.

As the editor of the official organ of the American Medical Association for two years, the writer has obtained an insight into the workings of that organization which leads him to make the following statements of fact and opinion:

The American Medical Association reached its highest membership in 1888 at Cincinnati. That city is located near the center of population of the United States, and the meeting was boomed through the local journal. Since that date there has been an annual decline of members and of revenue from their dues. The delinquents have been quite regularly every year a little more than forty per cent. of the members to whom THE JOURNAL is regularly mailed, which indicates faulty collections. While this may be the fault of no one in particular, it is no doubt mainly caused by the distant separation of the treasurer from THE JOURNAL office.

In December 1891 when the publication of the list of members was made we were gratified at an apparent increase in members, which was, however, more than offset by the immediate receipt from the treasurer of a list of almost five hundred names to be dropped as delinquents. The past year has witnessed an increase followed by a larger decrease.

The scientific work of the Association has kept quite fully abreast of the age; the interest in Section work has been very gratifying, and every year has brought an increasing number of scientific papers.

This apparently anomalous condition leads to an inquiry as to the cause, which we find in the faulty constitutional organization of the Association. It is at present a delegate body, and as such must annually draw its strength from the immediate locality of a meeting. Such a process ensures growth up to a certain point, when the decrease begins to equal the increase and a liability to retrogression for a term of years as we are now witnessing. The registration at Milwaukee was 198 less than a year ago in Detroit, and surely this was not from lack of interest or appreciation on the part of physicians near to Milwaukee.

Furthermore, the delegate system prevents the registration of all regular physicians at a place of meeting; for instance, in Detroit there were registered 385 new members. These were delegates representing 3,850 physicians every one of whom should have had an opportunity and a right to register as an active member. The same condition and effect will be shown at the Milwaukee meeting.

Next year the meeting will be in San Francisco and the delegates from that State said the Pacific coast had 3,500 physicians. Suppose it has, only 350 can become members of the Association if every Pacific coast delegation is absolutely full, and constituted of new members. Says an old member: They can all become members by application. True, but they don't, and won't come in that way. It may seem to some like a very little thing to be deprived of a right to vote; but on that little thing hinges the right of equality and sovereign citizenship. To be deprived of that right is antagonistic and repugnant to American physicians. It has been tried and don't work or go. Hence the absolute necessity for an abandonment of the delegate system of membership. Another cogent reason is the domination of votes in any meeting from the immediate locality. Milwaukee was entitled to about twenty delegates, but even that small number was greater than the entire representation from all the New England and Pacific coast States.

The apparently feasible, practical solution of this question will be found in a modeling of the Association constitution on the plan of the general government of the United States, whereby the American Medical Association will become a federation of State medical societies, the members of the State societies, by reason of such membership, being members of the American Medical Association. The official relations of the State societies should be maintained by an appointment or election of one or two State society members to represent their States in the business committee of the American Medical Association. These official State society representations would give national character to the organization. The executive committees of the several Sections as now constituted would give in the business committee a fair representation of the science and art of our profession. The business committee so constituted, representing every State in the nation and every special scientific department in medicine, becoming the legislative body of the American Medical Association, and performing the functions of the nominating committee. This legislative branch of the American Medical Association should formulate and submit all measures that may seem desirable for reference and action to the several State societies, a majority of such societies governing the result of action upon such subjects, only such matters being sent to the State societies as pertain to the general interest of the medical profession of the nation. Providing also, that in this federation of State societies there shall be represented but one such organization from any State.

To the State societies in this national federation, should be sent all amendments proposed for the constitution of the American Medical Association.

and also amendments and revision of the code of ethics. The latter, when agreed upon, should be recommended to the State societies for adoption, but not made mandatory upon such societies.

With a reorganization upon such a basis as the one outlined, there is no limit to the possible strength and growth of the American Medical Association, while its influence for good in all that pertains to the welfare of physicians and to the people would be immeasurable.

Unless some such action is taken by this grand old representative body, there is imminent danger of disintegration and the formation of another body of national character, that will attempt to do the work that should be accomplished by the American Medical Association. This is a danger that is now menacing the American Medical Association. To be forewarned calls for a forearming.

THE JOURNAL.—We are pleased to be able to say that notwithstanding the continued falling off in membership of the Association and the policy inaugurated by the board of trustees forbidding the manager to solicit subscriptions for THE JOURNAL the last has been its most prosperous financial year. A reference to the report of the trustees in this issue shows that the office receipts, mainly from advertising has been \$16,469.36, a much larger sum than was ever before received from a similar number of pages in this journal, and only lacking \$7,520.11 of paying the entire expense account of THE JOURNAL including the expenses of the trustees in their attendance upon their meetings and those of the Association. The treasurer of the Association reports a balance in his hands of \$5,844.78. The reason this balance is not four times larger than this sum, as practically representing the net profits of THE JOURNAL is because of the unusual large payment for halls, printing and other expenses of the Detroit meeting, the expenses of the treasurer and secretary of the Association, and the loss of nearly fifty per cent. of membership dues through non-payments.

This enormous list of delinquents is an intolerable load for THE JOURNAL to carry. To cut them off as they should be, the membership of the American Medical Association dwindles to very small proportions.

In the face of this extremely favorable financial showing, a member of the Association within the past few months took it upon himself to issue a typewritten circular letter, of which he stated at the Milwaukee meeting that one hundred were sent to the members of the business committee, other officers and prominent members of the Association, calling attention to his declaration that the journal of the Association was at that time in debt \$10,000, and about which the writer was frequently asked by members at the meeting. A more dastardly false-

hood pertaining to the financial standing of an enterprise was never uttered or promulgated.

THE JOURNAL in all of its history has never been in debt one dollar beyond the cash funds in the hands of the treasurer, and during the year that is past his balance has never been less than \$5,000, and June 1, 1893, THE JOURNAL did not owe one dollar of current or other bills, but had due and unpaid at that date more than \$1,900, due from advertising accounts, just filled, and orders uncompleted for more than \$11,000, or equal to half the amount necessary to pay the gross expense account of THE JOURNAL for the entire ensuing year. It is unnecessary to say that such work is not only infamous in the extreme, but in law libelous. To be a fool and a crank does not excuse a man for crime.

The man who did this was R. HARVEY REED. The members of the American Medical Association should know him by name. This is the first and only instance in which the editor has felt called upon to make an unpleasant reference to any individual in the pages of this journal. If the matter pertained only to the editor he would now be silent, but the vital interests of the Association demand an exposure of the infamy.

The relations of the medical profession of Chicago with THE JOURNAL and its editor have been cordial and pleasant in every respect.

With the general officers and members of the American Medical Association our relations have been agreeable, and our warmest thanks are expressed for their oftentimes consideration.

Our long-time connection with the Cincinnati *Lancet-Clinic* will be at once resumed, and at the old address of that publication 199 West Seventh Street, Cincinnati, O., where the latch string will always be found on the outside of the door for members of the American Medical Association.

THE DISCUSSION OF CHOLERA AT THE WIESBADEN
CONGRESS FOR INTERNAL MEDICINE,
APRIL 12-15, 1893.

The two subjects selected for special and extended discussion at the congress for internal medicine held in Wiesbaden April last, were cholera and the traumatic neuroses.

RUMPF, fresh from the recent Hamburg epidemic, introduced and took the principal part in the discussion on cholera. Among the large number of interesting observations detailed he showed that the total mortality rate was 48.36 per cent, and that two-thirds of all deaths occurred the first two days of the disease. All the cases that died during the first six or seven days of the attack showed comma bacilli in the intestines at the autopsy; of 120 post-mortem examinations after the seventh day bacilli were found in forty-nine; once as late as on the eighteenth day.

Bacilli were also demonstrated in the stools of patients with light attacks of choleraic diarrhoea, and they were also found in the solid stools of three persons, neither one of which complained of a single symptom of any kind. Very likely, then, cholera bacilli often pass through healthy individuals without causing any disturbances, and such individuals may carry the disease from one place to another. In regard to the demonstration of bacilli during the course of the attack of cholera, it was found that in the beginning and toward the end of the epidemic it usually required from forty-eight to seventy-two hours before typical plate cultures had grown; at the height of the epidemic it was possible to cultivate bacilli in from eight to ten hours. The bacilli may appear in the stools during the first day; then disappear to return again in two or three days.

RUMPF calls especial attention to the changes in the kidneys which he has learned to regard as belonging to the typical anatomical lesions of cholera, as they occur uniformly in those that died early as well as after a few days. There is found a granular disintegration of the epithelium and the tubules become filled with detritus, hyaline and granular casts, the peculiar feature being the fact that the nucleus escapes all changes at the same time as the blood vessels and glomeruli remain uninvolved; consequently a rapid restitutio ad integrum takes place as a general rule. This characteristic renal alteration is looked upon as due to the action of toxins in accordance with the view long ago expressed by VIRCHOW and ZENKER, namely, that the changes in the kidneys and in the intestines have a common origin, are both due to the cholera toxine.

The comatose conditions that frequently arise are also looked upon as due to the general intoxication rather than to the renal changes, because many patients died with such symptoms while the urinary excretion remained abundant.

RUMPF summarizes his experience and observations somewhat as follows: The comma bacillus must be regarded as the specific etiological agent in the causation of cholera, and yet the presence of comma bacilli in the intestines does not necessarily cause any disease. There must be other conditions present that probably depend on individual predisposition rather than upon time and place, because even during epidemics pathogenic bacilli may pass through the body without disturbance of the general health. This individual predisposition probably depends on digestive irregularities due to mistakes in diet or to the presence of other causes of disease in the bowels. The growth of bacilli from the dejections may be variable, and on this account the demonstration of the bacilli may become difficult.

The co-referee, GAFFKY, considered in particular the bacteriologic and etiologic aspect of cholera. He

also emphasized the fact that cholera bacilli may be found in the intestines of healthy persons, and cited an instance of sporadic cholera among the crew of two ships, and in the solid, normal feces of four healthy sailors the bacilli were found in considerable numbers. This corroborates GRIESINGER's statement made as long ago as 1885, that in all likelihood healthy persons may convey the poison from an infected district to distant places. On this account, as well as on account of the marked variation in the intensity of the cholera intoxication, GAFFKY regards the experiments of v. PETTENKOFER and EMMERICH, both of whom swallowed large quantities of bacillary cultures, as simply showing that the number of bacilli does not at all determine the severity of the attack. In other words, the fact that v. PETTENKOFER and EMMERICH escaped from their experiment with only a few anomalous symptoms does not demonstrate that cholera is due to bacilli, but that the intensity of the intoxication does not bear any relation to the number of the microbes ingested.

These fragmentary references to the Wiesbaden discussion on cholera will serve to emphasize particularly the importance of the demonstration of cholera bacilli in the solid feces of healthy individuals coming from infected districts, as regards the degree of quarantine that should be enforced in times of epidemics. In order to render the introduction of cholera into a country by immigrants and travelers in general from infected ports, or coming in infected ships, an absolute impossibility, or as near so as lies within human power, every individual, sick or healthy, would have to be detained in quarantine stations until bacteriologic examination showed the stools free from bacilli. The contention that the sick should be quarantined and the well permitted to go on is certainly erroneous, and a quarantine directed only against the sick must be regarded as forming but an imperfect safeguard. Nothing absolutely definite is known as to how long cholera bacilli may remain in the intestines without causing any symptoms in those that are attacked, although the incubation period is usually stated as being at least one day; how then are we to know when all bacilli have left the digestive tract in the individual that remains in perfect health during their entire sojourn, unless by bacteriologic examination of the stools?

VIBRATIONS IN THE TREATMENT OF NERVOUS DISORDERS.—Charcot, in the *Progrès Médicale*, describes the method of treating various nervous disorders by rapid and continuous vibrations. An apparatus produces oscillatory movements by means of an electro-motor, and the treatment has produced good results in some cases of neuralgia, neurasthenia, insomnia, and other disturbances. The author believes that this vibration acts as a powerful sedative by its action on the brain. A helmet has been made by the help of which and a small motor a continuous vibration is produced,

which is transmitted to the cranium. This is continued for about ten minutes and one application will often produce a good night's sleep, and continuous treatment shows very good results in different disturbances of the nervous system.

MISCELLANY.

THE MEDICO-LEGAL SOCIETY of Chicago at its annual meeting, held June 10, elected the following officers: Dr. D. R. Brower, president; Drs. James Burry and C. D. Wescott, vice-presidents; Dr. Joseph Matteson, treasurer; Dr. Archibald Church, secretary.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers serving in the Medical Department, U. S. Army, from July 10, 1893, to July 16, 1893.

First Lieut. George D. De Shon, Asst. Surgeon U. S. A., will proceed to Chicago, Ill., and report in person to Capt. Louis A. La Garde, Asst. Surgeon, in charge of the medical section of the War Department exhibit, World's Columbian Exposition, for such duty as may be required of him in connection with said exhibit.

First Lieut. Paul F. Straub, Asst. Surgeon U. S. A., is granted leave of absence for fifteen days, to take effect about July 1, 1893.

Major Washington Matthews, Surgeon, is granted leave of absence for one month, to take effect about the 1st prox., with permission to apply for an extension of one month. Col. Charles T. Alexander, Asst. Surgeon General U. S. A., is granted leave of absence for two months, to take effect on or about July 1, 1893.

Capt. Marlborough C. Wyeth, Asst. Surgeon U. S. A., extension of leave of absence granted on account of sickness is further extended two months on account of sickness.

Capt. George T. Beall, Medical Storekeeper U. S. A., is granted leave of absence for one month, from July 1, 1893.

Capt. Edward Everts, Asst. Surgeon U. S. A., leave of absence granted for seven days is extended twenty-three days.

OFFICIAL LIST OF THE CHANGES of stations and duties of Medical Officers of the U. S. Marine Hospital Service, for the five weeks ended June 10, 1893.

Surgeon P. H. Bailhache, granted leave of absence for four days, May 22, 1893.

Surgeon George Purviance, detailed as chairman board of examiners, May 8, 1893.

Surgeon W. H. H. Hutton, granted leave of absence for ten days, June 1, 1893.

Surgeon J. B. Hamilton, granted leave of absence for four days, June 1, 1893. Granted leave of absence for seven days, June 7, 1893.

Surgeon J. M. Gassaway, detailed as member board of examiners, May 8, 1893.

Surgeon G. W. Stoner, to represent the Service at meeting of American Medical Association, June 2, 1893.

Surgeon Fairfax Irwin, to proceed to Marseilles, France, for duty, May 16, 1893.

Surgeon H. R. Carter, detailed as recorder board of examiners, May 8, 1893. To report in Washington, D. C., for special temporary duty, May 20, 1893. To proceed to Delaware Breakwater Quarantine for temporary duty, May 31, 1893. To proceed to Buffalo, N. Y., for temporary duty, June 2, 1893.

P. A. Surgeon P. M. Carrington, to proceed to Bremen, Germany, for duty in office of U. S. Consul, May 16, 1893.

P. A. Surgeon J. J. Kinyoun, to proceed to Chicago, Ill., for special duty, May 8, 1893.

P. A. Surgeon H. T. Goodwin, to proceed to Detroit, Mich., for temporary duty, May 27, 1893.

P. A. Surgeon J. B. Stoner, granted leave of absence for twenty days, June 5, 1893.

P. A. Surgeon H. D. Geddings, to proceed to Reedy Island, Del., for special temporary duty, June 7, 1893.

Asst. Surgeon A. W. Condict, granted leave of absence for thirty days, June 5, 1893.

Asst. Surgeon Norman Seaton, granted leave of absence for six days, May 12, 1893.

INDEX VOLUME XX.

	PAGE.		PAGE.		PAGE.
ABDOMINAL massage	454	Centenary of the death of John Hunter	517	ECTOPIC pregnancy, its pathology, symptoms and treatment	507
surgery and its evolution and involution	261	Centigrade thermometer	340	Eczema seborrhoeicum, on the diagnosis and treatment of	528
Abscess, a plea for extraction and replantation as a means of cure in obstinate alveolar	5	Changes in nerve cells due to functional activity	397	1893	513
Access to the bladder	154	Chicago College of Physicians and Surgeons	640	Elastic constriction as a hæmostatic measure	506
Acromegaly	372	medical institutions	573	Electrical current, the treatment of metritis and endometritis by the	536
Acute intestinal obstruction, treatment of	430	Chicago's report on typhoid fever	282	treatment, new contributions of the	74
ulcerative endocarditis	626	Chlorobrom in asylum practice	594	Electric cataphoresis, its uses in general medicine	185
vesicular eczema, the external treatment of	290	Chloroforms solid	485	current of regular variation	126
Adamkiewicz on the nature and treatment of cancer	389	Cholera and tuberculosis, the relation of State medicine to	585	Electricity as an anæsthetic	312
Address on dietetics	228	no fear of	164	in gynecology	327, 413
on general surgery	661	the diagnosis of Asiatic	537	in medicine, the use and abuse in	72
Affections of the skin, on a new and practical mode of grouping	493	the necessity for prevention against the sulphuric acid treatment of	403	medical	310
Alabama State medical examining board	47	the treatment of Asiatic	569	the treatment of salpingitis by depletion and drainage, secured by	364
Alcohol	613	Chorea	220	Electrolysis, the present status of	414
consumption, the relation of suicide to	593	a few considerations in the subject of laryngitis, a contribution to the study of	289	Electrolytic action in removal of certain neoplasms	537
Alienist	504	viewed from the standpoint of comparative pathology	196	Electro-therapeutic apparatus, the need of greater simplicity and uniformity in	279
Alopecia and alopecia areata, some successful methods of treating	525	Cincinnati College of Medicine and Surgery	81	therapeutic work in a private hospital, a summary of	547
American association for the study of infertility	318	Circumcision, ritualistic	220	Eleventh International Medical Congress	455
Medical Association	344, 367, 679	Citric acid the important constituent of cancerin	486	Endometrium in fibro-myoma of the uterus, changes in	482
Amœba coli; its relation to dysentery and tropical suppurative hepatitis	221	Clark, Sir Andrew	584	the pathology of the	420
An army medical board	192	Clitoritis, far-reaching influence of abnormalities of the	645	Endowments for medical schools	106
Antipyrin in epistaxis	485	Cocaine, the removal of the tooth pulp by the use of	16	Epilepsy, a case of laryngeal	604
Appendicitis	613	Code of Ethics	372, 509, 511, 588, 591	bromides in	450
Applicants for admission to the grade of assistant surgeon in the U. S. marine hospital service	462	of Ethics, revision of the	107, 156, 183, 258, 460, 82	Epistaxis, antipyrin in	485
Are asylum physicians party pensioners	486	of Ethics, the great patent regulator (no pun)	512	Erysipelas, the treatment of malignant tumors by inoculation of	615
Arrests of development and decalcification of the enamel and dentine	29	Coheu, Solomon Solis	510	Etiology of carcinoma	131, 341
Arrowhead Hot Springs of Southern California	594	Collaboration in materia medica and pharmacy	94	of the various deformities of hip-joint disease	398
Artificial ripening of immature cataracts	343	Collateral associations	137	Eucalyptus, notes on the	79
Asiatic cholera, the treatment of	569	organizations	79	Examinations for the medical department of the U. S. army	51
Asepsable or aseptizable	138	Columbia College general catalogue	620	Executive committee of the Congress of American Physicians and Surgeons	492
Asphyxia neonatorum, the treatment of	457	Combined water and albumen method of fixing paraffin sections on the slide	440	Exophthalmic goitre	612
Association of southern medical colleges	79	Coming meeting and its work, the	50	Experimental union of the ureter after transverse division	225
Association, collateral	137	Commencement of the Meharry College	224	Eye diseases to nasal conditions, the relation of	453
Atkinson, Wm. B.	571	Committee of arrangements announcement	571	troubles which constitute a frequent source of headache, vertigo and nausea and other nervous disorders	11, 67, 99, 123
Audible nerve currents	47	Comparison of market fluid extracts and their relation of fifty per cent. tinctures	177	FAIR play	510
Australian medical congress	431	Competency as evidence of statements made to physicians	677	Fallopian tubes	585
BASTARDY law of Illinois	209	Condition of the blood in gastric affections	53	Family exemption from cholera secured by sanitary measures	675
Billroth and other German surgeons	132	Conference of State examining and licensing boards	541	Far-reaching influence of abnormalities of the clitoris	645
Bladder, cause of valve at the neck of the tumors of the	432	of State medical examining and licensing boards	460	Fenn, C. N.	487
Blood and blood vessels, biological aspects of	537	Conservative member, a	109, 186, 260, 510	Fibroids, the treatment of uterine	586
Boil it down	318	Consumption	558	Filtered or boiled water	38
Boils by boric acid, the treatment of	619	contagiousness of	505, 551	Friedenwald, Dr. Julius	457
Bound volume of the proceedings of the section on obstetrics and diseases of women	676	Texas as a climate for	353	GENERAL medicine of the Pan American Medical Congress, preliminary program of the section on	596
Braun, tumors of the	162	Constitution and by-laws	367	surgery, address on	601
Bridgeport, Conn., prohibits the practice of irregular physicians in its limits	26	and by-laws of the American Medical Association, the revision of the	429	Georgia, the practice of medicine in	508
Brief review of some of the recent practical advances in medicine and therapeutics	651	and by-laws, revision of the	451	Germany and the Pan American Medical Congress	222
Bronchitis to broncho-pneumonia, the relation of	612	and by-laws, the revised	427	Gibson, Albert H.	108
Brown, Morean R.	618	Contagion of scarlet fever	2	Glaucoma and cataract, the constant current in	423
Bright's disease of the kidneys, clinical lecture on the treatment of different forms of	10	Contribution to the electrical treatment of cystic goitre and hydrocele	307	Goitre	612
Bromidism	489	Copaiba in cirrhosis of the liver	453	Gold, with especial reference to its clinical application	656
Bronchocele, thyroidectomy	411	Coughing made easy in bronchiectasis	306	Gonorrhœa, puerperal	450
Butterfield, Dr. Ralph	57	Cranium, skin grafting upon the	149	treatment of	492
CAFFEINE and the Question of its Insomnism	90	Crippled children	190	Government check	107
Calcium sulphide in the treatment of pulmonary tuberculosis	139	Crouch, Myrick J.	614	Gross monument	134
Camphor by means of ozone, preparation of	490	DENTAL pathology, the general and the local in	32	Guaiaecol carbonate in phthisis	163
Cancer, Adamkiewicz on the nature and treatment of	399	Dentine in pulpless teeth, the condition of the	59	Gums, diseases of the	57
Carcinoma, on certain conditions in regard to the infective nature of	163	Denver	194	Gynecology, a consideration of some of the operative measures employed in	189
the etiology of	133	Diagnostic value of cylindroids in the urine, the	398	cataphoresis in	214
the parasite of	49	Diphtheria in Champaign county	612	electricity in	443
Cataphoresis	130	of the heart, a case of	566	modern	536
in gynecology	214	the treatment of	406	note upon a new application of the alternative sinusoidal current	445
notes upon the chemistry of	212	Diphtheritis	432	HÆMOLYSIS	52
Cataract operations	137	Directory of Chicago medical institutions	575	Haffkin's experiments in India	676
the importance of early diagnosis of	640	Discussion of Dr. Grady's paper	7	Haughey, W. H.	518
Catheterization of the fallopian tubes	586	Diseases of women	640	Headache and iodide of potash	432
Causes and treatment of premature baldness	190	Distinction between soluble and organized ferments	482		
		Diuretin	296		
		Doctor of medical sciences	48		
		Boering, E. J.	346		
		Domestic correspondence	286, 346, 373, 613		
		Dührsen, Dr., of Berlin	78		
		Dulcin, a new synthetic sugar for diabetics	676		

	PAGE.		PAGE.		PAGE.
Healing of arrested pulmonary tuberculosis	514	Locomotor ataxia by the eye symptoms, the possibility of the early diagnosis of	167	New Mexico, a bird's eye view of	27
Heart, a case of diphtheria of the	536	Lunacy law of Illinois	611	York, the Medical Society of the State of	196
Hemorrhage, intra peritoneal	537	Lupus, a case of	502	No fear of cholera	161
Helicobacter, the treatment of an attack of	452				
Hedetary influence, its relation to mental disease	537				
Hervey, J. W.	588	MAGNESIUM sulphate as a purgative	536	OBSTETRICS, the atmospheric tractor in	380
Heterophthalmia, a radical cure for	508	Maintenance of private asylums a constitutional right	645	address in	643
Higher medical education, and the Women's Medical College of Pennsylvania	260	Malaria, the organisms of	23	Objector, the	257
Hip disease	170, 226	Manifesto of the Section on Otology, Pan American Medical Congress	462	Oesophageal ascultation	455
Hip, joint disease, etiology of the various deformities of	398	Marine biological laboratory	458	Oleum succini as a rubefacient	451
Hobbes, for medical men	489	Massachusetts has a record as a sterile State	51	On bicycling for women	648
Holmes, Bayard	52	Massey, G. Betton	25	certain conditions in regard to the infective nature of carcinoma	163
Homeopathic physicians, points of similarity between us and	580	McLean, Dr. Donald	545	internal secretions and the functions of the so-called blood glands	447
Hopkins, J. G.	287	Menses, a case of subcutaneous emphysema complicating	536	the influence of the ship canal	611
Howe, W. P.	286, 511	Medical and surgical faculty of Maryland	535	the physles of cataphoresis	103
Human life, and how to live long; the limit of	599	Editors' Association	483	secondary neuro-fibroma	488
Hydrochloric acid in the stomach	26	education in the United States, the present status of	24	One year's work in tubal and ovarian laparotomies	293
Hygiene, address in	642	electricity from an electrician's standpoint	310	Oophorectomy	508
Hygienic measures in relation to infectious diseases	513	examinations	166	Opening of the discussion on electric cataphoresis	103
Hypertrophies and degenerations of cicatrices and cicatricial tissues	607	examiners, a board of	507	Ophthalmia in the new born, etiology of	377
Hypodermic injection of solutions of magnesium sulphate as a purgative	536	institutions, a brief directory of Chicago	573	Ophthalmology, little things in	586
Hysterical aphonia, with singing voice unaffected	616	legislation	105	Oral manifestations in metallic poisonings	35
		schools, endowment for	106	Organisms of malaria, the	23
		Society of the State of New York	191	Ovaries, removal of the	238
		Temperance Association	540	Ovariectomy, the technique and after treatment of	509
		Medicinal plasters	199		
INCUBATION period of infectious disease	454	Medicine, address in	610	PAN AMERICAN medical congress, 318, 375, 434, 490, 572, 616, 618, 650	
Ideal surgery	117	Medico-legal points	286	American medical congress and Germany, many	222
Index catalogue, the	133	Mental aberrations	637	American medical congress, committee of organization	375
India, Haffkin's experiments in	676	disorders, address in	642	American medical congress, manifesto of the section on otology	462
Indian Territory Medical Association	375	Metritis and endometritis, the treatment of	536	American medical congress, new by-laws	317
Indications for lithotomy	255	Microbes through the skin, the passage of	456	American medical congress, section on general medicine	375
Inebriates, recent judicial evolution as to criminal responsibility of	195	Middleton, Goldsmith, lecture	26	American medical congress, section on anatomy	250, 348
Inebriety, some facts relative to diseases of the teeth and jaws in	8	Migraine	412	American medical congress, section on hygiene, etc.	288
specifics for the cure of	204	Millard, Perry H.	485	American medical congress, section on laryngology and rhinology of the	194
the American Association for the Study and Cure of	318	Milwaukee	313	American medical congress, section on military medicine and surgery	221
the treatment of alcoholic	408	meeting	109, 429, 671	American congress, ophthalmological section of the	260
Infantile paralysis; tendon anastomosis	107	Mineral waters, crude and refined	438	American medical congress, the government of Venezuela and the	224
Infectious diseases	513	Monstrosities	113	American medical congress, the Republic of Colombia and the	491
periostitis of the tibia, a case of acute	535	Morvan's disease a variety of leprosy	314	Papers to be read	256
Influence of the nervous system in certain disturbances of the skin	496	Mr. Gladstone on the physician's recompense	617	Paralysis agitans, pathology of	490
Illinois State Board of Health	512	Mucous colitis	613	Parasite of carcinoma, the	49
the bastardy law of	200	Mulattoes, the morbid proclivities and retrogressive tendencies in the offspring of	1	Parker, W. W.	588
Immunity, some clinical aspects of	537	Multiple neuritis, alcoholic	506	Pathogenic action of typhoid bacilli on animals	285
Implied contract between physician and patient	372	Municipal asepsis	284	Peach fever	485
In memoriam—Dr. Gilman Kimball	393	Myrrhoin	106	Peculiar nuclear safranin reaction, and its relation to the carcinoma coccidia question	111
Inquirer	568	Myxedema by thyroid extract, and the functions of the thyroid gland; the treatment of	161	Pelvic disease, the relation of to psychical disturbance in women	650
Insane, board of pathologists of the New York City asylum for the	572	Myxosporidia	561	Periproctitis with an abscess, and report of a case	507
removal of the ovaries as a therapeutic measure in public institutions for the	135			Perityphlitis	606
removal of the ovaries in public institutions for the	258	NASAL duct, stricture of the	617	Picrotoxine in the night sweats of phthisis	490
the proposed legislation regarding the commitment of the	387	National quarantine laws	80	Phenocoll hydrochloride as a local application	570
the transfusion of nerve substance in the treatment of	619	Native African child marriage, its relation to uterine disease and difficult parturition	87	Philadelphia letter	149
Insanity, alcoholic	207	Necessity for trained and educated health officials	189	Phthisis, guaiacol carbonate in	433
Insomnia by sulphonal and chloral, treatment of	483			Physicians may testify as to matters gained from the study of books	677
Interest in medical meetings	449	NECROLOGY.		of London	104
International Congress of Charities, Correction and Philanthropy	138, 166	Prof. Benjamin Ball	545	Plea for extraction and replantation as a means of cure in obstinate alveolar abscess	5
Congress of Medicine, the eleventh	287	James Bell	223	Position of the tongue in peripheral facial palsy	455
Medical Congress, the	541	J. S. Dorsey Cullen	545	Post-graduate course	488
Medical Congress in Rome	488	William B. Davis	224	Present status of the medical profession	618
Congress at Rome not adjourned	645	W. W. Dawson	223	President's address	621
Investigations of Drs. Abbott and McCormick	312	Spencer C. Devan	194	Public health in England	301
on psoriasis	451	John Hunter, centenary of the death of	517	Puerperal eclampsia, etiology of	508
Iowa Medical Board upheld	542	Edward Henshilton Jones	488	eclampsia, with a report of cases	505
		Gilman Kimball	393	gonorrhea	450
JACKSON, EDWARD	545, 567	Sammel Logan	512	infection, with special reference to auto-infection	536
Johns Hopkins Medical School	596	Wm. Lomax	614	sepsis	549
		Milton Josiah Roberts	545	Pneumonia-bronchitis to broncho-	612
KEELY cure institutes	164	Dr. George U. Sargent	82	Pneumonic fever	17, 135, 465
Kentucky member	462, 614	William P. Seymour	512	fever, its symptomatology	319
Knee-joint, two cases of excision of the	356	George C. Shaddock	82	Practical data on the application of water in some intractable diseases	244
Knife curette	181	Dr. B. A. Watson	545	Practice of medicine in ancient Rome	122
Koch Institute for Infectious Disease—letter from Berlin	487	Dr. Thomas Fanning Wood, memorial of	545	Practitioner	512
		William Lee	649	Pregnancy, ectopic	507
		Charles H. Pinney	649	Premature baldness, the causes and treatment of	190
		Charles Pratt Strong	677	Preliminary manifesto of the section on diseases of the mind and nervous system, Pan American medical congress	248
		Dr. Charles Carroll Lee	696	program of the eighth annual meeting of the Association of American Physicians	317
		Dr. Rowdon Macnamara	696	programs	541
LACERATIONS of the cervix uteri and their treatment	251	Need of a united medical profession	430		
Laparo-hysterotomy	587	of greater simplicity and uniformity in electro-therapeutic apparatus	279		
Laparotomy	549	of national quarantine	51		
Laryngismus stridulus, the etiology of	62	Negative pole of the galvanic current with faradization as a uterine developer, with report of cases	366		
Laryngology, address in	641	Nephritis, cases illustrating the various forms of chronic diffuse	435		
Laryngo-tracheitis, a case of	411	Neuralgia, the treatment of	535		
Laws of Michigan	22	Neurology, the uses of anodal diffusion in	215		
Legal effect of accepting an amount less than bill rendered	675	New knot-tyer, a	148		
Leprosy, Morvan's disease a variety of	314	engraving for physician's offices	603		
Liebreich, Prof. O., on mineral waters	677	forms of medication by means of thyroid gland preparations	676		
Lithemia	302	instrument	618		
Lithotomy, the indications for	255	law regulating the practice of medicine in Kentucky	395		
Liver, copaha in cirrhosis of the	453				
Living and chemical fermentation	451				

	PAGE.
report	316
Prescription exigencies	96
Present status of medical education in the United States	24
Professional unification	311
Prof. Virchow in England	459
Prolapsus uteri, with retro-deviation	483
Prostatic hypertrophy, a new treatment of	585
Psoriasis, forty cases of	101
Pulmonary consumption	482
phthisis	641
phthisis	630
QUACKERY, protected against	269
Quacks, the regulation of	52
Quality of compressed air for sprays and inhalations	89
Quarantine laws	80
the need of national	51
RAILROAD rates	542, 595
Railway surgeons of Ohio	194
Reasonable doubt and preponderance of evidence in medical jurisprudence	383
Regulation of quacks by local legislation	52
Relation of suicide to alcohol consumption	594
Relative fertilizing value of the galvanic and faradic currents in ectopic gestation, discussion of	361
Remarkable sequence of operation for necrosis at base of skull	37
Remittant or so called typho-malarial fever	506
Removal of the gasserian ganglion	180
of the ovaries as a therapeutic measure in public institutions for the insane	135
Report of the committee on standard coils	71
Restoration of vitality to muscles which have been completely paralyzed from poliomyelitis	146
Results of military service as exemplified by cases found in the national military homes	142

REVIEWS.

Adler. Fissure of the anus and fistula in ano	165
Baker and Harris. Kirk's hand-book of physiology	165
Bastian. Various forms of hysterical or functional paralysis	404
Bradford and Lewis. Hand-book of emergencies and common ailments	193
Bramwell. Atlas of clinical medicine	487
Bulkeley. Acne and alopecia	166
Canfield. The hygiene of the sick room	487
Carmichael. Disease in children, a manual for students and practitioners	403
Crocker. Diseases of the skin	512
Davidson. Geographical pathology	590
Davis and Keating. Mother and child	425
Davis. Principles and practice of bandaging	166
De Schweinitz. Diseases of the eye, a hand-book of ophthalmic practice for students and practitioners	347
Diseases of inebriety from alcohol, opium and other narcotic drugs; its etiology, pathology, treatment and medico-legal relations	590
Fuchs. Text-book of ophthalmology	423
Gowers. Syphilis and the nervous system	423
Hare. A text-book of practical therapeutics, with especial reference to the application of remedial measures to disease, and their employment upon a rational basis	316
Hirst. Human monstrosities	512
Keating, Daland and Brun. International Clinics, a quarterly of clinical lectures on medicine, neurology, pediatrics, etc.	53, 131, 192
Keating, Daland, Bruce and Finlay. International clinics	648
Kelsey. Diseases of the rectum and anus; their pathology, diagnosis and treatment	648
Kirchhoff. Hand-book of insanity for practitioners and students	126
Lea. The chemical basis of the animal body, an appendix to Foster's text-book of physiology	54
Lyman. A text-book of the principles and practice of medicine	132
Marey. The anatomy and surgical treatment of hernia	246
Matthews. Diseases of the rectum	193
McBride. Diseases of the throat, nose and ear	374
McLaughlin. Fermentation, infection and immunity: a new theory of these processes which unifies their primary causation and places the explanation of their phenomena in chemistry, biology and dynamics of molecular physics	282
Ott. The modern antipyretics; their action in health and disease	234
Parkes. Hygiene and public health	25
Pepper. A text-book of the theory and practice of medicine by American teachers	611

Potter. Hand book of materia medica, pharmacology and therapeutics	317
Ransom. Diseases of the skin	187
Report of the surgeon-general of the army to the secretary of war for the fiscal year ending June 30, 1892	54
Roberts. On the chemistry and therapeutics of uric acid gravel and gout	425
Schofield. Elementary physiology for students	488
Simon. Manual of chemistry	611
Smith. An introduction to the study of diseases of the skin	487
Stearns. Lectures on mental diseases	426
Stockwell. Cholera, its protean aspects and its management	188
Transactions of the American Orthopaedic Association	103
of the thirtieth annual meeting of the American Laryngological Association	424
of the twenty-third annual session of the Medical Society of Virginia	317
The discussion of cholera at the Wiesbaden congress for internal medicine, April 12-15, 1893	699
Milwaukee meeting	697
year book of treatment for 1893	373
Twenty-third annual report of the State Board of Health of Massachusetts	194
Usher. Alcoholism and its treatment	374
Revised constitution and by-laws	127
Revision of the code of ethics	51, 107, 159, 183, 298, 507
Rickets and the treatment of its resulting deformities	13
Ritnalsistic circumcision	220
Rohe, George H.	183
Rumbold, Thos. F.	512
Rush monument, the	486, 620
Medical College, the corner-stone of the new biological department of	379
Medical College	80

SALISBURY diet as an aid to the climate of Colorado springs in the treatment of pulmonary consumption	335
Sarcoma of the pons and gliosarcoma of the cerebellum	145
Scabies, experiences with	560
Scarlet fever and its treatment	642
fever, contagion of	2
Science in medicine and surgery	506
Sections	345
Section on anatomy and surgery, preliminary program of	543
on anatomy of the Pan American medical congress	260, 348
on dental and oral surgery, program of	371
on dermatology	517
of dermatology and syphilography	476
on diseases of children	431, 434
of diseases of children, preliminary program of the	542
on diseases of the mind and nervous system	348
of general medicine of the Pan American medical congress	375
on hygiene, climatology and demography	288
on laryngology and otology	385, 570
on laryngology and otology, program of the	543
on laryngology and rhinology of the Pan American medical congress	194
on materia medica and pharmacy	95
on medical pedagogics	288
of military medicine and surgery	221
of neurology and medical jurisprudence	402
on obstetrics and diseases of women, preliminary program of the	571
ophthalmic	546, 517
ophthalmological, of the Pan American medical congress	260
of physiology and dietetics	103
Simonton, A. C.	590
Simple tourniquet clasp, a	125
Shot-gun prescriptions	505
Should medicine and dentistry become a function of the state	331
Skin and syphilis, recent advances in the treatment of the	519
anomalies, mechanical treatment of some	509
grafting upon the cranium	119
Smith, J. C.	568

SOCIETY PROCEEDINGS.

American Academy of Medicine	376
Association of Genito-Urinary Surgeons	650
Climatological Association	494
Electro-therapeutic Association	47, 71, 101, 124, 178, 186, 194, 209, 250, 278, 307, 336, 357, 391, 411
Medical Association	129
Medical Editors' Association	671
Medico-Psychological Association	675
Pediatric Society	506
Pharmaceutical Association	517
Physicians' Association of	572
Surgical Association	138, 643, 656

Association of Acting Assistant-Surgeons, U. S. Army	620
Arizona Medical Association	348
British Gynecological Society refuses admission to women	570
Colorado State Medical Society	518
Eleventh International Congress of Medicine	433
Fifth District Branch of New York State Medical Association	110
Medical Association of Georgia	318, 376
Georgia State Medical Association	505
state Medical Association, annual address	505
Gynecological Society of Boston	412
Society, the British	570
Illinois State Medical Society	585, 611
state Medical society, annual meeting of	596
Iowa State Medical Society	234
state Medical Society, annual meeting of	596
Medico-Legal Society of Chicago	209, 383
Mississippi Valley Medical Association	678
Missouri State Medical Association	471, 620
Medical Society of the Missouri Valley	110
Nebraska State Medical Society	258
state Medical Society, twenty-fifth annual meeting	545
State Medical Society, yearly meeting	506
New Hampshire Medical Society	650
York, the Medical Society of the County of	244
Medical Society of the State of New York	110
Society of the State of North Carolina	518
Obstetricians and Gynecologists, the American Association of	546
Pennsylvania, Medical Society of the State of	640
Tennessee State Medical Society	375
Iri-state Medical Society of Iowa, Illinois and Missouri	288
State medical societies	128
solid chloroforms	485
some medical frictions	283
some physiological experiments with magnets at the Edison laboratory	338
Southern Medical College Association versus the American Medical College Association	81
South Carolina State Medical Society, annual meeting of	596
Specialist before a general medical society	373
Spina binda, a case of	21
Squint and its treatment	658
Stable electrode, old materials newly arranged	116
State examining and licensing boards, the conference of	541
laboratories; Nebraska takes the lead	503
medical examining boards, the personnel of	221
medical societies	164
sterility and impotence following the left lateral operation for stone, two cases of	381
stone in the bladder, with report of cases	508
study of the requirements of the average prospective medical student in 1892	22
of the Cheyne-stokes respiration	89
stricture of the nasal duct	617
striphur	190
Suppurative perforative osteo-mylitis of inferior maxilla	121
Surgeon-general Illinois State National Guard	34
general of the United States Army	617
general of the United States Navy	594
surgery, address in	642
advancement of	138
of the gall bladder	608
of the gall-bladder and ducts	449
of the rectum	670
the present status of corrosive sublimate in	452
therapy of rectal cancer	382
surgical problems	661
treatment of cervical, thoracic and abdominal aneurism	669
suspension in chronic myelitis	509
syphilis from a sociological standpoint	497
recent advances in the treatment of diseases of the skin and	519
tardiva	444
syphilitic exuma of upper eyelid	609
Symphysiotomy compared with its substitutes with reference to a case successfully performed under difficulties	37
TALLEY, A. N.	28
Technic of catheterism of the Eustachian tube, and the indications for its use	14
Tendon anastomosis in infantile paralysis	67
Therapeutic agents; the bile salts, urea, etc.	601
as	601
To iodize iodoform	16
remove nitrate of silver, etc.	16
Treatment of myxoedema by thyroid extract and the fractions of the thyroid gland	161
Traphing and cerebral injury, report of cases of	354

	PAGE.		PAGE.		PAGE.
Trichloroacetic acid	383	States, the forthcoming report of the		Varicose veins by resection of the saphena,	
Truax, Charles	25	bureau of education on professional		treatment of	482
Tube casts, with demonstrations	587	education in the	39	Venezuela, the government of and the Pan	
Tubercle bacilli in lymphatic glands	650	States army, the examinations for the		American medical congress	224
Tubercular adenitis, with general alopecia		medical department of the	26, 81	Vertigo, two cases of lithemic	463
and pruritus	504	Universal mento-dental splint, with report		Ventral fixation of the uterine	412
meningitis by tuberculin, diagnosis of	611	of case	55	Virchow, Professor	483
syphilis, a case of	84	Ununited fractures	643	Prof., at Charité Hospital, Berlin	264
Tuberculosis, calcium sulphide in the treat-		Urine, the diagnostic value of cylindroids			
ment of pulmonary	439	in the	398		
concerning heredity and	539	Use and abuse of electricity in medicine	72	WALBRIDGE, L. P.	568
healed or arrested pulmonary	514	of the rotary transformer in medicine	278	Wanted	54
of the female generative organs	219	Utah legislature	303	a word	25
the relation of State medicine to cholera	585	Uterine appendages, indications for the re-		Ward, W. E.	818
Tumors of the bladder	553	moval of	587	Weil's disease	538
of the brain	162	fibroids, the treatment of	586	What benefit can ear patients derive from	
fibroid, some recent conclusions in the		Uterus, a new and rapid method of remov-		nasal treatment?	597
treatment of	395	ing the	344	When are cured diphtheretics safe?	432
Typhoid fever, a unique case of	612	carcinoma of the	641	Why do not all think the Code above revis-	
fever, turpentine in	426	ventral fixation of the	412	ion?	544
Typho-malarial fever	506			Wingate, W. O. B.	312, 571
				Wiring of fractured patella	616
				Woods, John L.	95
Uxiox Médicale	60	VALUE of gelatin and gelatigenous foods	456	Wright, H. J. B.	588
United medical profession, the need of a	439	of voltaic alternatives in optic nerve		John	588
		atrophy	250		





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